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SESSIONAL PAPERS.

VOLUME 6.

SECOND SESSION OF THE SEVENTH PARLIAMENT

OF THE

DOMINION OF CANADA.

SESSION 1892.



VOLUME XXV.

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See also Numerical List, page 4.

ALPHABETICAL INDEX

TO THE

SESSIONAL PAPERS

OF THE

PARLIAMENT OF CANADA.

SECOND SESSION, SEVENTH PARLIAMENT, 1892.

NOTE.—In order to find quickly whether a paper has been printed or not, the mark (n.p.) has been inserted when not printed ; papers not so marked, it may be understood, are printed. Further information concerning each paper is to be found in the List, commencing on page 4

A		C	
Abrogation in Treaties of Commerce.....	24, 24a	Canadian Coloured Cotton Mills Co.....(n.p.)	74
Adulteration of Food.....	6b	Canadian Pacific Railway.....	34
Agriculture, Annual Report and Appendices	7	Canadian Pacific Railway.....(n.p.)	34a
Albert Southern Railway (n.p.)	100	Canals, Revenue Branch.....	9c
Annapolis and Atlantic Railway.....(n.p.)	62	Canal Statistics.....	9a
Archibald, H. D.....(n.p.)	61a	Canal Tolls.....	99
Archives, Canadian.....	7a	Carling, Hon. John.....(n.p.)	39
Auditor General, Annual Report.....	1	Census of Canada (n.p.)	96
B		Charlebois, F (n.p.)	23g
Baie des Chaleurs Railway.....(n.p.)	88	Chartered Banks.....	3
Banks, Chartered.....	3	Chicoutimi and Saguenay Election.....(n.p.)	92
Banks, Unclaimed Balances in.....	3a	Chinese Immigrants..... (n.p.)	33
Beet Sugar.....	7c	Civil Service Board of Examiners.....	16b
Binding Twine.....(n.p.)	105	Civil Service Irregularities.....	49
Board of Examiners, Civil Service.....	16b	Civil Service List.....	16a
Bonds and Securities (n.p.)	32	Civil Service, Royal Commission Report...16c,	79
Boucherville Wharf (n.p.)	48a	Civil Service Superannuations.....	27
Boundaries of Quebec.....	71	Commissioner, Dominion Police..... (n.p.)	21
Bounty on Pig Iron.....	38	Commission of Lieutenant Governors... (n.p.)	72
Bridge at Sorel. (n.p.)	63a	Commissions to Public Officers.....	31
Bridge over Lachine Canal.....(n.p.)	63	Conference at Washington.	37
British Canadian Loan Investment Co...(n.p.)	28	Copyright Laws 81 (1891)	
British Columbia Dominion Lands.	36	Cotton Seed Oil... (n.p.)	89
British Columbia Indian Reserves . . . (n.p.)	98	Cows at Experimental Farm (n.p.)	50
British Columbia Voters.....(n.p.)	41c	Criminal Statistics.....	7c
British Farm Delegates (n.p.)	91	D	
		Dairy Commissioner.....	7g
		Disallowance of Legislation.....(n.p.)	51, 52

D		J	
Dividends unpaid in Banks.....	3a	Judges of Superior Court, Quebec.....(n.p.)	87
Dominion Buildings, Lighting.....(n.p.)	81	Justice, Annual Report.....	18
Dominion Cotton Mills Co.....(n.p.)	74	K	
Dominion Lands.....	36a	Keewatin Territory.....(n.p.)	30
Dominion Lands in British Columbia.....	36	Kingston Graving Dock.....(n.p.)	77
Dominion Police Commissioner.....(n.p.)	21	L	
E		Lachine Canal Bridge.....(n.p.)	63
Election of Members.....(n.p.)	25, 25a	La Have River.....(n.p.)	35
Election Petitions in N. S.....(n.p.)	86	Land Grants to Railways.....(n.p.)	101
Electric Lighting.....(n.p.)	81	Lands sold by C.P.R. Co.....(n.p.)	34a
Engraving and Printing.....(n.p.)	69	Lennox Voters' List.....(n.p.)	41, 41b
Estimates, 1893.....	2	Library of Parliament, Annual Report.....	17
Eugenia, Postmaster of.....(n.p.)	82	Lieutenant Governors, Commission of.....(n.p.)	72
Expenditure on Public Works.....	65	"Lily," H.M.S.....(n.p.)	93
Expenses, Unforeseen.....	22	Live Cattle from U.S.....	68
Experimental Farms.....(n.p.)	50a	Live Stock, Tariff on.....(n.p.)	61d
Experimental Farms, Annual Report.....	7f	Lobster Fishery.....	23b
Exports and Imports.....(n.p.)	43	Location Tickets.....(n.p.)	97
Exports, General.....(n.p.)	54	London Voters' List.....(n.p.)	41a
Exports to Newfoundland.....(n.p.)	44	Longueuil Wharf.....(n.p.)	48a
F		M	
Fisheries, Annual Report.....	11	Mackenzie River Basin Territory.....(n.p.)	30
Fisheries on Atlantic coast.....	23e, 23f, 23h	Mail Conductors.....(n.p.)	83
Fisheries Statements and Inspectors' Reports.....	11a	Mails, Canada and United Kingdom.....(n.p.)	40
Fish, etc., from Newfoundland.....	23d	Manitoba Legislation, Disallowance of.....(n.p.)	51, 52
Fishing Bounties.....	23	Manitoba School Case.....	46
Fishing Industry, Newfoundland.....	23i	Map of Dominion.....(n.p.)	67
Fishing Licenses.....	23c	Marine, Annual Report.....	10
Fishing on Restigouche River.....(n.p.)	23a	Militia and Defence, Annual Report.....	19
Flour, Canadian.....(n.p.)	44	Militia of Canada.....(n.p.)	59
G		Miscellaneous Unforeseen Expenses.....	22
Galops Rapids.....(n.p.)	73, 73a	Mortuary Statistics.....	7d
Gas Lighting.....(n.p.)	81	Mulgrave Station.....(n.p.)	61
Geological Survey Report.....	13a	Mc.	
Government Railways, Property near.....(n.p.)	61b	McLellan, John Alexander and Peter.....(n.p.)	97
Governor General's Warrants.....	20	N	
Governor General's Warrants.....(n.p.)	20a	New Carlisle Wharf.....(n.p.)	48
H		Newfoundland, Admission of, into Canada.....	70
Halifax Board of Trade.....(n.p.)	60a	Newfoundland and Canadian Trade.....(n.p.)	60a
High Commissioner, Reports of.....	7b	Newfoundland Bait Act.....23e, 23f, 23h, 23j	44
I		Newfoundland, Exports to.....(n.p.)	44
Imports from United States.....(n.p.)	55	Newfoundland Fishing Industry.....	23i
Ingram, W. H.....(n.p.)	75	Newfoundland Fishing Licenses.....	23c
Indian Affairs, Annual Report.....	14	Newfoundland, Imports from.....	23d
Indian Reserves in British Columbia.....(n.p.)	98	North-West 'Assembly.....(n.p.)	103
Inland Revenue, Annual Report.....	6	North-West Mounted Police.....	15
Insurance, Annual Report.....	4	Nova Scotia Election Petitions.....(n.p.)	86
Insurance Companies.....	4a, 4b	P	
Intercolonial Railway:		P.E.I. Tunnel.....(n.p.)	66
Accident on the.....(n.p.)	61a	P.E.I. Tunnel.....	66a
Expenditure.....	61c	Pig Iron.....	38
Live stock tariff.....(n.p.)	61d		
Discharge of Michael Quinn.....(n.p.)	61e		
Interior, Annual Report.....	13		

P

Pontiac County.....	(n.p.) 76
Pork and Hog Products.....	(n.p.) 53
Postmaster General, Annual Report.....	12
Prince County, P.E.I.....	(n.p.) 57
Printing and Engraving.....	(n.p.) 69
Prohibition Petitions.....	58
Property near Government Railways.....	(n.p.) 61 <i>b</i>
Public Accounts, Annual Report.....	2
Public Officers' Commissions.....	31
Public Printing and Stationery.....	16 <i>d</i>
Public Works, Annual Report.....	8
Public Works, Expenditure on.....	65

Q

Quebec, Boundaries of.....	71
Quebec Superior Court Judges.....	(n.p.) 87
Quebec Tonnage Dues.....	(n.p.) 60
Quinn, Michael.....	(n.p.) 61 <i>e</i>

R

Railway Committee of Privy Council.....	(n.p.) 80, 80 <i>a</i>
Railways and Canals, Annual Report.....	9
Railway Statistics.....	9 <i>b</i>
Receipts and Payments.....	(n.p.) 26 to 26 <i>b</i>
Receipts in Unorganized Territories.....	(n.p.) 30
Restigouche River, Fishing on.....	(n.p.) 23 <i>a</i>
Rock-slide at Quebec.....	(n.p.) 94
Royal Commission, Civil Service.....	16 <i>c</i> , 79
Royal Commissions.....	84, 84 <i>a</i>

S

Sawdust in Rivers.....	(n.p.) 35
Secretary of State, Annual Report.....	16
Senate <i>Hansard</i>	(n.p.) 85
Shareholders in Banks.....	3
Shipments from Canada.....	(n.p.) 54

S

Sick Mariners' Dues.....	(n.p.) 78
Sorel Bridge.....	(n.p.) 63 <i>a</i>
Soulanges Canal.....	(n.p.) 47 <i>a</i> , 47 <i>b</i>
Speaker's Warrants.....	(n.p.) 25, 25 <i>a</i>
Spruce and White Pine.....	(n.p.) 102
Standard of Time.....	(n.p.) 90
St. Césaire Postmaster.....	(n.p.) 64
Steamboat Inspection.....	10 <i>a</i>
Superannuations, Civil Service.....	27
Supplementary Estimates.....	2
Supreme Court.....	56

T

Temperance Colonization Co.....	(n.p.) 45, 95
Time, Standard of.....	(n.p.) 90
Trade and Navigation, Annual Report.....	5
Treaties of Commerce.....	24, 24 <i>a</i>
Trent Valley Canal.....	47
Truro, Accident at.....	(n.p.) 61 <i>a</i>
Tunnel between P.E.I. and Mainland.....	66
Tunnel between P.E.I. and Mainland.....	66 <i>a</i>

U

Unforeseen Expenses.....	22
United States Fishing Vessels.....	23 <i>c</i>

W

Waldron Rancho Co.....	(n.p.) 104
Warrants, Governor General's.....	20
Warrants, Governor General's.....	(n.p.) 20 <i>a</i>
Warrants, Speaker's.....	(n.p.) 25, 25 <i>a</i>
Washington Conference.....	37
Weights, Measures and Gas.....	6 <i>a</i>
Welland Election.....	(n.p.) 42
White Pine and Spruce.....	(n.p.) 102
Wood, A. F.....	(n.p.) 29

See also Alphabetical Index, page 1.

LIST OF SESSIONAL PAPERS

Arranged in Numerical Order, with their Titles at full length ; the Dates when Ordered and when Presented to both Houses of Parliament ; the Name of the Member who moved for each Sessional Paper, and whether it is Ordered to be Printed or Not Printed.

CONTENTS OF VOLUME 1.

1. Report of the Auditor General on Appropriation Accounts for the year ended 30th June, 1891. Presented 15th March, 1892, by Hon. G. E. Foster—

Printed for both distribution and sessional papers.

CONTENTS OF VOLUME 2.

2. Public Accounts of Canada for the fiscal year ended 30th June, 1891. Presented 1st March, 1892, by Hon. G. E. Foster. 2a. Estimates for the year ending 30th June, 1893 ; presented 14th March, 1892. 2b. Supplementary Estimates for the year ending 30th June, 1892 ; presented 31st March, 1892. 2c. Supplementary Estimates for the year ending 30th June, 1893 ; presented 27th June, 1892..... *Printed for both distribution and sessional papers.*

3. List of Shareholders in the Chartered Banks of Canada as on the 31st December, 1891 ; presented 22nd March, 1892, by Hon. G. E. Foster..... *Printed for both distribution and sessional papers.*

CONTENTS OF VOLUME 3.

- 3a. Report of dividends remaining unpaid and amounts, or balances, in respect to which no transactions have taken place, or upon which no interest has been paid for five years or upwards, prior to 31st December, 1891, in chartered banks of Canada. Presented 12th May, 1892, by Hon. G. E. Foster.

Printed for both distribution and sessional papers.

4. Report of the Superintendent of Insurance for the year ending 31st December, 1891.

Printed for both distribution and sessional papers.

- 4a. Preliminary abstract of the business of Canadian Life Insurance Companies for the year ending 31st December, 1891. Presented 1st March, 1892, by Hon. G. E. Foster.

Printed for both distribution and sessional papers.

- 4b. Abstract of statements of Insurance Companies in Canada for the year ending 31st December, 1891. Presented 10th May, 1892, by Hon. G. E. Foster.

Printed for both distribution and sessional papers.

CONTENTS OF VOLUME 4.

5. Tables of the Trade and Navigation of Canada for the fiscal year ended 30th June, 1891, compiled from official returns. Presented 1st March, 1892, by Hon. M. Bowell.

Printed for both distribution and sessional papers.

6. Report, Returns and Statistics of the Inland Revenues of Canada, for the fiscal year ended 30th June, 1891 ; Part I, Excise, etc. Presented 31st March, 1892, by Hon. J. Costigan.

Printed for both distribution and sessional papers.

VOLUME 4—*Continued.*

6a. Inspection of Weights, Measures and Gas, being a supplement to the Report of the Department of Inland Revenue, 1891 *Printed for both distribution and sessional papers.*

6b. Report on Adulteration of Food, for the fiscal year ended 30th June, 1891.
..... *Printed for both distribution and sessional papers.*

CONTENTS OF VOLUME 5.

7. Report of the Minister of Agriculture of Canada, for the calendar year 1891. Presented 6th April, 1892, by Hon. J. Carling. Appendices to the Report of the Minister of Agriculture of Canada, for the year 1891. Presented 20th June, 1892, by Hon. J. Carling.

..... *Printed for both distribution and sessional papers.*

7a. Report on Canadian Archives, 1891. Presented 8th April, 1892, by Hon. J. Carling.
..... *Printed for both distribution and sessional papers.*

7b. Report of the High Commissioner of Canada, with Reports from Agents in the United Kingdom, for the year 1891. Presented 6th April, 1892, by Hon. J. Carling.

..... *Printed for both distribution and sessional papers.*

7b.* Supplementary Report of the High Commissioner of Canada. Presented 29th March, 1892, by Hon. G. E. Foster..... *Printed for sessional papers only.*

7c. Report on the production and manufacture of Beet Sugar by William Saunders, Director Dominion Experimental Farms. Presented 4th March, 1892, by Hon. G. E. Foster.

..... *Printed for both distribution and sessional papers.*

CONTENTS OF VOLUME 6.

7d. Mortuary Statistics of the principal cities and towns of Canada, for the year 1891. Presented 30th May, 1892, by Hon. J. Carling *Printed for both distribution and sessional papers.*

7e. Criminal Statistics for the year 1891..... *Printed for both distribution and sessional papers.*

7f. Reports of the Director and Officers of the Experimental Farms for the year 1891. Presented 5th July, 1892, by Hon. J. Carling..... *Printed for both distribution and sessional papers.*

7g. Second Annual Report of the Dairy Commissioner of Canada, for 1891.
..... *Printed for both distribution and sessional papers.*

CONTENTS OF VOLUME 7.

8. Annual Report of the Department of Public Works of Canada, for the fiscal year 1890-91. Presented 21st April, 1892, by Hon. J. A. Ouimet *Printed for both distribution and sessional papers.*

9. Annual Report of the Minister of Railways and Canals, for the past fiscal year, from the 1st July, 1890, to the 30th June, 1891. Presented 6th April, 1892, by Hon. J. Haggart.

..... *Printed for both distribution and sessional papers.*

CONTENTS OF VOLUME 8.

9a. Canal Statistics for Season of Navigation, 1891. *Printed for both distribution and sessional paper*

9b. Railway Statistics, and Capital, Traffic and Working Expenditure of the Railways of Canada, for 1891. Presented 30th June, 1892, by Hon. J. Haggart.

..... *Printed for both distribution and sessional papers.*

9c. Annual Report of the Canals Revenue Branch for 1891.
..... *Printed for both distribution and sessional papers.*

10. Twenty-fourth Annual Report of the Department of Marine, for the fiscal year ended 30th June, 1891. Presented 1st April, 1892, by Hon. C. H. Tupper.

..... *Printed for both distribution and sessional papers.*

10a. Report of the Chairman of the Board of Steamboat Inspection, etc., for calendar year ended 31st December, 1891 *Printed for both distribution and sessional papers*

CONTENTS OF VOLUME 9.

- 11.** Annual Report of the Department of Fisheries, for the year 1891. Presented 2nd June, 1892, by Hon. C. H. Tupper.....*Printed for both distribution and sessional papers.*
- 11a.** Fisheries Statements and Inspectors' Reports for the year 1891.
Printed for both distribution and sessional papers.
- 12.** Report of the Postmaster General of Canada, for the year ended 30th June, 1891. Presented 13th April, 1892, by Sir A. P. Caron.....*Printed for both distribution and sessional papers.*
- 13.** Annual Report of the Department of the Interior, for the year 1891. Presented 2nd June, 1892, by Hon. E. Dewdney*Printed for both distribution and sessional papers.*
- 13a.** Summary Report of the Geological Survey Department, for the year 1891. Presented 5th May, 1892, by Hon. E. Dewdney.....*Printed for both distribution and sessional papers.*

CONTENTS OF VOLUME 10.

- 14.** Annual Report of the Department of Indian Affairs for the year ended 31st December, 1891. Presented 9th March, 1892, by Hon. E. Dewdney...*Printed for both distribution and sessional papers.*
- 15.** Report of the Commissioner of the North-West Mounted Police, 1891. Presented 28th June, 1892, by Hon. E. Dewdney.*Printed for both distribution and sessional papers.*
- 16.** Report of the Secretary of State of Canada for the year ended 31st December, 1891. Presented 9th July, 1892, by Hon. J. C. Patterson.....*Printed for both distribution and sessional papers.*
- 16a.** The Civil Service List of Canada, 1891. Presented 9th July, 1892, by Hon. J. C. Patterson.
Printed for both distribution and sessional papers.
- 16b.** Report of the Board of Civil Service Examiners for the year ended 31st December, 1891. Presented 1st June, 1892, by Hon. J. C. Patterson..*Printed for both distribution and sessional papers.*

CONTENTS OF VOLUME 11.

- 16c.** Report of the Royal Commission appointed to investigate the working of the Civil Service Act, and other matters connected with the Civil Service generally. Presented 20th May, 1892, by Sir John Thompson.....*Printed for both distribution and sessional papers.*
- 16d.** Annual Report of the Department of Public Printing and Stationery of Canada, for the year ending 30th June, 1891. Presented 15th June, 1892, by Hon. J. C. Patterson.
Printed for both distribution and sessional papers.
- 17.** Report of the Joint Librarians of Parliament for the session of 1892, on the state of the Library of Parliament. Presented 25th February, 1892, by Hon. Mr. Speaker—
Printed for sessional papers only.

CONTENTS OF VOLUME 12.

- 18.** Report of the Minister of Justice as to Penitentiaries in Canada for the year ended 30th June, 1891. Presented 23rd March, 1892, by Sir John Thompson.
Printed for both distribution and sessional papers.
- 19.** Annual Report of the Department of Militia and Defence of Canada, 31st December, 1891. Presented 7th April, 1892, by Hon. M. Bowell.....*Printed for both distribution and sessional papers.*
- 20.** Statement of Governor General's Warrants issued since the closing of parliament and of the expenditure made on them, in accordance with the Consolidated Revenue and Audit Act. Presented 29th February, 1892, by Hon. G. E. Foster.....*Printed for distribution only.*
- 20a.** Return to an address of the House of Commons to his excellency the Governor General, dated 8th March, 1892, for copies of all reports of ministers of the crown upon which any Governor General's warrants have been issued during the recent recess of parliament, and of the orders in council authorizing such issue. Presented 7th April, 1892.—*Mr. Mulock.*.....*Not printed.*
- 21.** Report of the Commissioner, Dominion Police, for the year 1891, under Revised Statutes of Canada, chapter 184, section 5. Presented 29th February, 1892, by Sir John Thompson.....*Not printed.*

VOLUME 12—*Continued.*

- 22.** Statement of expenditure under vote for miscellaneous unforeseen expenses, from July, 1891, to date. Presented 1st March, 1892, by Hon. G. E. Foster..... *Printed for distribution only.*
- 23.** Statement in reference to fishing bounty payments for 1890-91, required by chapter 96 of the Revised Statutes of Canada. Presented 1st March, by Hon. C. H. Tupper. *Printed for sessional papers only.*
- 23a.** Return to an order of the House of Commons, dated 3rd August, 1891, for a return of the names of proprietors to whom licenses have been granted for salmon net fishing on the Restigouche River, in the county of Bonaventure, for 1890 and 1891. Presented 3rd March, 1892—*Mr. Fauvel.*
Not printed.
- 23b.** Draft of proposed regulations for the lobster fishery. Presented 17th March, 1892, by Hon. C. H. Tupper... *Printed for distribution only.*
- 23c.** Copies of papers relating to the mutual recognition by Canada and Newfoundland of licenses issued to United States fishing vessels, under the *modus vivendi*, and the division of the fees collected by the same. Presented 18th March, 1892, by Hon. C. H. Tupper... *Printed for sessional papers only.*
- 23d.** Return to an order of the House of Commons, dated 14th March, 1892, for a return showing the quantity, value and kinds of fish, fish oil and fish products imported into Canada from Newfoundland, each year, for past five years; also amount of duty thereon which would have been paid if the duties levied upon similar imports from other countries had been levied. Presented 22nd March, 1892.—*Mr. White (Shelburne).* ... *Printed for sessional papers only.*
- 23e.** Further papers respecting the fisheries on the Atlantic coast, including the separate arrangement proposed to be entered into by Newfoundland with the United States, and also the enforcement by the government of Newfoundland against Canadian vessels of the Newfoundland Bait Act. Presented 30th March, 1892, by Hon. C. H. Tupper..... *Printed for sessional papers only.*
- 23f.** Additional papers respecting the fisheries on the Atlantic coast, including the separate arrangement proposed to be entered into by Newfoundland with the United States, and also the enforcement by the government of Newfoundland against Canadian vessels of the Newfoundland Bait Act. Presented 7th April, 1892, by Hon. C. H. Tupper. *Printed for both distribution and sessional papers.*
- 23g.** Return to an order of the House of Commons, dated 6th April, 1892, for a copy of all correspondence between F. Charlebois, of Byng Inlet, North (Ontario), and the fisheries department concerning the payment of a claim for service performed by the said Charlebois for the said department. Presented 21st April, 1892—*Mr. Laurier*..... *Not printed.*
- 23h.** Further papers respecting the enforcement against Canadian fishing vessels by the government of Newfoundland of the Newfoundland Act respecting the sale of bait to foreign fishing vessels. Presented 11th May, 1892, by Sir John Thompson *Printed for sessional papers only.*
- 23i.** Return to an order of the House of Commons, dated 14th March, 1892, for a return showing the number of Newfoundland vessels and men therein, and number of fixed fishing establishments owned by Newfoundlanders, with number of employees engaged last year in fishing, in whole or in part, within the waters adjacent to Canadian Labrador and Magdalen Islands. Presented 12th May, 1892.—*Mr. White (Shelburne).*..... *Printed for sessional papers only.*
- 23j.** Further papers respecting the enforcement by the Newfoundland authorities against Canadian fishing vessels of the Newfoundland Act respecting the sale of bait to foreign vessels. Presented 20th May, 1892, by Sir John Thompson..... *Printed for sessional papers only.*
- 24.** Return to an address of the House of Commons to his excellency the Governor General, dated 21st April, 1890, for copies of any and all communications that may have passed between the imperial and dominion governments with reference to the abrogation of such articles in the various treaties of commerce between her majesty's government and the government of foreign nations as preclude preferential fiscal treatment of goods of British and colonial production by the government of the dominion. Presented 7th March, 1892.—*Mr. Laurie.*
Printed for both distribution and sessional papers.
- 24a.** Copy of a despatch from the right honourable the secretary of state for the colonies in reply to an address to her majesty praying that her majesty would take such steps as might be necessary to denounce and terminate the provisions contained in the most-favoured nation clauses of the treaties with the German zollverein and the kingdom of Belgium. Presented 22nd April, 1892, by Hon. G. E. Foster *Printed for sessional papers only.*

VOLUME 12—*Continued.*

- 25.** Return to an order of the House of Commons, dated 3rd March, 1892, showing the date of the Speaker's warrant, the date of the writ, and the date of the appointment of a returning officer, in the case of election of members to the House of Commons, since the close of last session; also a statement of the causes of delay in reference to any of these matters where delays have taken place. Presented 7th March, 1892.—*Mr. Mills (Bothwell)*.....*Not printed.*
- 25a.** Supplementary return to an order of the House of Commons, dated 3rd March, 1892, for a return showing the date of the Speaker's warrant, the date of the writ, and the date of the appointment of a returning officer, in the case of election of members to the House of Commons, since the close of last session; also a statement of the causes of delay in reference to any of these matters where delays have taken place. Presented 3rd June, 1892.—*Mr. Mills (Bothwell)*.....*Not printed.*
- 26.** Ten days' statement of the receipts and payments of Canada, from the 11th to the 20th February, and from the 21st to the 29th February, 1892, and the corresponding periods of 1891. Presented 7th March, 1892, by Hon. G. E. Foster.....*Not printed.*
- 26a.** Ten days' statement of the receipts and payments of Canada, from the 1st to the 10th March instant, and the corresponding period of 1891. Presented 15th March, 1892, by Hon. G. E. Foster.
Not printed.
- 26b.** Ten days' statement of the receipts and payments of Canada, from the 11th to the 20th of March, instant, and the corresponding period of 1891. Presented 23rd March, 1892, by Hon. G. E. Foster.
Not printed.
- 26c.** Ten days' statement of the receipts and payments of Canada, from the 11th to the 20th of April, instant, and the corresponding period of 1891. Presented 22nd April, 1892, by Hon. G. E. Foster.
Not printed.
- 26d.** Ten days' statement of the receipts and payments of Canada, from the 21st to the 30th of April, ultimo, and the corresponding period of 1891. Presented 4th May, 1892, by Hon. G. E. Foster.
Not printed.
- 26e.** Ten days' statement of the receipts and payments of Canada, from the 11th to the 20th May, instant, and the corresponding period of 1891. Presented 30th May, 1892, by Hon. G. E. Foster.
Not printed.
- 26f.** Ten days' statement of the receipts and payments of Canada, from the 21st to the 31st May last, and the corresponding period of 1891. Presented 3rd June, 1892, by Sir John Thompson.—
Not printed.
- 26g.** Ten days' statement of the receipts and payments of Canada, from the 1st to the 10th June, instant, and the corresponding period of 1891. Presented 27th June, 1892, by Hon. G. E. Foster.—
Not printed.
- 26h.** Ten days' statement of the receipts and payments of Canada, from the 21st to 31st June last, and the corresponding period of 1891. Presented 9th July, 1892, by Hon. G. E. Foster. *Not printed.*
- 27.** Statement of all superannuations and retiring allowances in the civil service, giving the name and rank of each person superannuated or retired, his salary, age and length of service, his allowance and cause of retirement, whether vacancy has been filled by promotion or new appointment, etc., for year ended 31st December, 1891. Presented 7th March, 1892, by Hon. G. E. Foster.—
Printed for both distribution and sessional papers.
- 28.** Statement of the affairs of the British Canadian Loan and Investment Company, as on the 31st December, 1891. Presented 9th July, 1892, by Hon. Mr. Speaker.....*Not printed.*
- 29.** Return to an address of the Senate to his excellency the Governor General, dated 4th August, 1891, for a statement in detail of the amount of money paid to A. F. Wood, Esq., for services, etc., as commissioner for canals and railways in different places in 1890. Presented 4th March, 1892.—*Hon. Mr. Flint*.....*Not printed.*
- 30.** Return to an address of the Senate to his excellency the Governor General, dated 5th June, 1891, for a statement of all receipts in the unorganized territories of Keewatin and the Mackenzie River Basin on account of revenue under the Customs Act or otherwise, for the last three years, and of the expenditure for public purposes during the same period. Presented 4th March, 1892.—*Hon. Mr. Girard*.....*Not printed.*

VOLUME 12—*Continued.*

- 31.** List of public officers to whom commissions have issued under chapter 19 of the Revised Statutes of Canada, during the past year, 1891. Presented 10th March, 1892, by Sir John Thompson.
Printed in No. 16.
- 32.** Detailed statement of all bonds and securities registered in the department of the secretary of state of Canada, since last return, 1891, submitted to the parliament of Canada under section 23, chapter 19, of the Revised Statutes of Canada. Presented 10th March, 1892, by Sir John Thompson.
Not printed.
- 33.** Return to an order of the House of Commons, dated 1st July, 1891, for a return giving : 1. The number of Chinese immigrants that have entered Canada since the date of the last return ordered by the House, specifying : (a). The ports at which said Chinese immigrants were entered ; (b). The amount of duty or head-money collected ; (c). The number that entered by virtue of return certificates ; (d). The number of return certificates issued during the same period, and the number of Chinese that during the same period passed through Canada in bond to destinations out of Canada. 2. The number that entered Canada as belonging to the diplomatic or consular service of China. 3. The number of Chinese that entered Canada during the same period, either as tourists, men of science, students or merchants. 4. Copies of all correspondence, if any, between the imperial government and this government, or between this government and the government of China, if any, or between the government of British Columbia and this government, or with any labour organization, or with any company, corporation or person, having reference to the Chinese Restriction Act or suggesting amendments to the same. Presented 10th March, 1892.—*Mr. Gordon.*
Not printed.
- 34.** Return under resolution of the 20th February, 1882, in so far as the same is furnished by the department of interior, respecting the Canadian Pacific Railway Company. Presented 11th March, 1892, by Hon. E. Dewdney.....*Printed for sessional papers only.*
- 34a.** List of lands sold by the Canadian Pacific Railway Company from the 1st October, 1890, to the 1st October, 1891. Presented 6th April, 1892, by Hon. J. Haggart*Not printed.*
- 35.** Return to an order of the House of Commons, dated 13th July, 1891, for a return of all letters, correspondence, petitions and papers, not otherwise brought down, between all persons in the department of marine and fisheries relating to sawdust in the LaHave River, Lunenburg County, N.S., with the object of having the river relieved from the operation of the said act. Also a list of rivers and streams exempted from the operations of the act, and a return of all letters, correspondence, petitions and papers between all persons and the department of marine and fisheries relating to such exemptions. Presented 14th March, 1892.—*Mr. Kaubach and Mr. Flint.*.....*Not printed.*
- 36.** Return of orders in council relating to the department of the interior, in accordance with sub-clause (d) of section 38 of the Regulations for the Survey, Administration, Disposal and Management of Dominion Lands, within the 40 mile Railway Belt, in the province of British Columbia. Presented 15th March, 1892, by Hon. E. Dewdney.....*Printed for sessional papers only.*
- 36a.** Return of orders in council relating to the department of the interior, in accordance with clause 91 of the Dominion Lands Act, chapter 54, Revised Statutes of Canada. Presented 15th March, 1892, by Hon. E. Dewdney*Printed for sessional papers only.*
- 37.** Copies of documents relating to the negotiations at the conference recently held at Washington, between the delegates from the Canadian government and the secretary of state of the United States, respecting the extension and development of trade between the United States and Canada, and other matters. Presented 16th March, 1892, by Sir John Thompson.
Printed for both distribution and sessional papers.
- 38.** Statements of the quantity of pig iron manufactured in Canada, upon which bounties are claimed, the names of claimants and the amount paid in each case. Presented 16th March, 1892, by Hon. M. Bowell.....*Printed for sessional papers only.*
- 39.** Return to an address of the Senate to his excellency the Governor General, dated 3rd March, 1892, praying that his excellency will cause to be laid before this House, a copy of the resignation, by the Honourable John Carling, Minister of Agriculture, of the seat in the Senate occupied by him at close of the last session of parliament. Presented 17th March, 1892.—*Hon. Mr. Power.*
Not printed.

VOLUME 12—Continued.

40. Return to an order of the House of Commons, dated 5th May, 1891, for copy of all correspondence between the government or the postmaster general's department with Mr. Andrew Allan or any other parties, for the conveyance of the mails between Canada and the United Kingdom. Presented 18th March, 1892.—*Mr. Mills (Bothwell)*.....*Not printed.*
41. Return (in part) to an order of the House of Commons, dated 14th March, 1892, for copies of all the original lists and papers, including all declarations, notices of appeal, objections to preliminary lists, and relating to all other proceedings, now in the possession of the revising barrister or the clerk of the crown in chancery, in any way affecting the voters' lists for the electoral division of the county of Lennox as settled by the revision of 1891, together with a certified copy of the revised voters' list of 1891 furnished by the revising barrister to the returning officer. Presented 21st March, 1892.—*Mr. Wilson (Lennox)*.....*Not printed.*
- 41a. Return to an address of the House of Commons to his excellency the Governor General of the 21st March, 1892, for: 1. Copies of the judgment given by the revising officer on objections taken to the names of Lewis Allin, S. F. Glass and James P. Moore and 226 others on the voters' list of the city of London, province of Ontario, and which 229 names were subsequently struck off the said voters' list, by the revising officer, on the hearing of the objections, but which were nevertheless printed on the said voters' list is the subject of an appeal, together with copies of the notices of objection to such names and copies of the evidence taken before and decision given by the revising officer on each such name. 2. Copies of all proceedings in appeal taken to the county court judge from the judgment of the revising officer on any or all of such cases, together with any judgment or decision given by such county court judge thereon. 3. Copies of the judgment of the Queen's bench division, high court of justice, Ontario, in the matter of an application to said court for a mandamus to said revising officer in respect of the said votes or any of them, together with copies of the judgment of the court of appeal (Ontario) in respect of the same matter. Presented 11th April, 1892.—*Mr. Sutherland*.....*Not printed.*
- 41b. Supplementary return to an order of the House of Commons, dated 14th March, 1892, for copies of all the original lists and papers, including all declarations, notices of appeal, objections to preliminary lists, and relating to all other proceedings, now in the possession of the revising barrister or the clerk of the crown in chancery, in any way affecting the voters' lists for the electoral division of the county of Lennox as settled by the revision of 1891, together with a certified copy of a the revised voters' list of 1891 furnished by the revising barrister to the returning officer. Presented 21st April, 1892.—*Mr. Wilson*.....*Not printed.*
- 41c. Return to an order of the House of Commons, dated 9th May, 1892, for a return showing the number of voters in the several electoral districts of the province of British Columbia, and the number of voters in each polling district of the electoral district. Presented 12th May, 1892.—*Mr. Mara*.....*Not printed.*
42. Return to an address of the House of Commons to his excellency the Governor General, dated 17th March, 1892, for a return of the proceedings had at the trial of the recent election petition relating to the election of a member for the electoral district of the county of Welland, together with the findings of the judges who tried the said petition upon the same, and of all evidence taken thereat; also a certified copy of the case and factums filed upon the appeal from such findings or any of them with the registrar of the Supreme Court of Canada. Also a copy of any report and communication made to Mr. Speaker by the said judges in reference to the said petition. Presented 22nd March, 1892.—*Mr. Tisdale*.....*Not printed.*
43. Return to an order of the House of Commons, dated 7th March, 1892, for a return, in the form used in the statements usually published in the *Gazette*, of the exports and imports from the 1st day of July, 1891, to the 1st day of March, 1892, distinguishing the products of Canada from those of other countries; and comparative statements from the 1st day of July, 1890, to the 1st day of March, 1891. Presented 22nd March, 1892.—*Mr. Sutherland*.....*Not printed.*
44. Return to an order of the House of Commons, dated the 9th March, 1892, for a return showing the total quantity of Canadian flour exported to Newfoundland in each of the years 1890 and 1891; the law and regulations of the Newfoundland Government relating to the importation into that colony of flour; the total quantities of Canadian cattle, beef, pork, hogs and cheese exported to Newfoundland in each of the years 1890 and 1891. Presented 22nd March, 1892.—*Mr. Hughes*.....*Not printed.*

VOLUME 12—*Continued.*

- 45.** Supplementary return to an order of the House of Commons, dated 17th March, 1890, for a return of all correspondence, memorials and agreements between the government and the Temperance Colonization Company, together with correspondence of settlers, employees and members of the company, relative to the operations of the said company. Presented 23rd March, 1892.—*Mr. Wallace*.....*Not printed.*
- 46.** Return to an address of the House of Commons to his excellency the Governor General, dated 14th March, 1892, for a copy of the judgment of the Supreme Court in the appealed case of *Barrett vs. the City of Winnipeg*, commonly known as the “Manitoba School Case.” Presented 23rd March, 1892.—*Mr. LaRivière*.....*Printed for both distribution and sessional papers.*
- 47.** Report of the Commissioners appointed to consider the advisability of extending the Trent Valley Canal, and to what extent. Presented 24th March, 1892, by Hon. J. Haggart.
Printed for both distribution and sessional papers.
- 47a.** Return to an address of the House of Commons to his excellency the Governor General, dated 10th March, 1892, for a return of all tenders received by the department of railways and canals for sections 11, 12 and 13 of the proposed Soulanges Canal. Such return to comprise: (a) The aggregate amount of each tender; (b) The quantity of each class of work in the schedules of each section; (c) The amount of each tender in detail as “moneyed out” by the product of the quantity and price of each item; (d) Copies of all reports to, and orders in council relative to said tenders; (e) Copies of all reports of engineers on each of said sections; (f) Copies in detail of all estimates of engineers on each section, showing quantity, price and amount of each class of work in schedule; (g) Copies of all correspondence relative to said tenders. Presented 9th May, 1892.—*Mr. Sutherland*.....*Not printed.*
- 47b.** Return to an order of the House of Commons, dated 17th March, 1892, for copies of engineers’ reports which led to the building of the Beauharnois Canal; of engineers’ reports in favour of the building of the Soulanges Canal, and of reports, letters, etc., from engineers, masters or pilots, objecting to the building of the canal at Soulanges. Presented 9th May, 1892.—*Mr. Bergeron*.....*Not printed.*
- 48.** Return to an order of the House of Commons, dated 17th June, 1891, for a return of all payments and cost of construction of the New Carlisle wharf, including amount paid to the crown lands department and owners of timber limits in the county of Bonaventure, for timber used on the said works. Presented 31st March, 1892.—*Mr. Fauvel*.....*Not printed.*
- 48a.** Return to an order of the House of Commons, dated 20th July, 1891, for: 1. A detailed statement of work done on the wharves at Longueuil and Boucherville, in the county of Chambly, since the commencement of the said works in 1886. 2. A detailed statement of the several sums expended by the government in connection with the said works, showing the names of persons to whom such several sums were paid, and why and under what arrangement or contract such payments were made. 3. Copies of all reports of engineers on the said wharves, and of the estimates, and also of all letters addressed to the department of public works in relation to the said works. Presented 13th April, 1892.—*Mr. Beausoleil*.....*Not printed.*
- 49.** Copy of a report of a committee of the privy council, appointed to investigate and report upon the cases of irregularity in the civil service as developed in the public accounts committee, etc. Presented 31st March, 1892, by Hon. G. E. Foster.....*Printed for sessional papers only.*
- 50.** Return to an order of the House of Commons, dated 23rd March, 1892, for a return showing the number of cows kept at the Central Experimental Farm between the first day of January, 1891, and the first day of January, 1892. The number of cows of each of the different breeds; the quantity of milk given by each cow; the quantity of milk to make a pound of butter; the quantity of milk sold; the quantity of butter sold; where sold, and the prices obtained each month; the kinds of food given and the value of the same. Presented 31st March, 1892.—*Mr. McMillan (Huron)*.
Not printed.
- 50a.** Return to an order of the House of Commons, dated 30th March, 1892, for a statement showing: 1. The number and location of the several experimental farms. 2. The amount expended on each of them since the date of its establishment. 3. The name of each and every employee of each farm, and a statement of the salary and of any other emoluments received from the government by each of them. Presented 2nd June, 1892.—*Mr. Frémont*.....*Not printed.*

VOLUME 12—*Continued.*

- 51.** Return to an address of the House of Commons to his excellency the Governor General, dated 27th May, 1891, for copies of all papers, correspondence and documents, together with reports of the minister of justice and order in council relating to the disallowance of an act passed by the local legislature of the province of Manitoba, on the 31st day of March, 1890, intituled : "An Act respecting the Diseases of Animals." Presented 31st March, 1892.—*Mr. Watson* *Not printed.*
- 52.** Return to an address of the House of Commons to his excellency the Governor General, dated 27th May, 1891, for copies of all papers, correspondence and documents, together with the report of the minister of justice and order in council relative to the disallowing an act passed by the legislature of the province of Manitoba, on the 31st March, 1890, intituled : "An Act to authorize companies, institutions or corporations incorporated out of this province to transact business therein." Presented 31st March, 1892.—*Mr. Watson* *Not printed.*
- 53.** Return to an order of the House of Commons, dated 21st March, 1892, for a return showing the quantities of each of the following classes of pork and hog products imported into Canada from the United States, in each of the years 1888-89, 1889-90 and 1890-91; with the value thereof and amounts of duty and rates levied thereon : Bacon and hams, shoulders and sides ; lard, tried or rendered ; lard, untried ; pork ; pork barrelled in brine, made from the sides of heavy hogs, after the hams and shoulders are cut off, and containing not more than sixteen pieces to the barrel of two hundred pounds weight ; pork, imported in the carcass for exportation. Presented 31st March, 1892.—*Mr. Hughes* *Not printed.*
- 54.** Return to an order of the House of Commons, dated 21st March, 1892, for a return showing the quantity of the shipments in the following lines from Canada, from 30th June, 1891, to 31st December, 1891, and the country to which shipped : The number of horses of all kinds ; the number of sheep ; the quantity of eggs ; the number of bushels of barley ; the quantity of malt ; the number of tons of hay ; the number of bushels of potatoes ; giving the quantity shipped to each country, and the total shipments in the several lines. Presented 31st March, 1892.—*Mr. McMullen* *Not printed.*
- 55.** Return to an order of the House of Commons, dated 21st March, 1892, for a return showing the quantities of beef salted in barrels ; dried or salted meats and meats preserved in any other way than salted or pickled ; other meats fresh or salted, n. e. s. ; butter, cheese and horses imported into Canada from the United States in each of the three years 1888-89, 1889-90 and 1890-91 ; with the values thereof and rates of duty thereon. Presented 31st March, 1892.—*Mr. Hughes* *Not printed.*
- 56.** General Order No. 86 of the Supreme Court of Canada. Presented 1st April, 1892, by Sir John Thompson *Printed for sessional papers only.*
- 57.** Return to an order of the House of Commons, dated 17th March, 1892, for a statement showing the amount of money expended by the government of Canada in the years 1890-91 on piers, breakwaters, etc., in Prince County, Prince Edward Island ; the amount expended on each of these works, the work let by contract and to whom let ; also showing the total amount voted during said years and the amount not expended. Presented 5th April, 1892.—*Mr. Perry* *Not printed.*
- 58.** Return to an order of the House of Commons, dated 7th March, 1892, for a statement showing the number of petitions for prohibition presented to the House of Commons during the session of 1891 : 1. Total number of petitions presented. 2. Total number of signatures to these petitions. 3. Number of (1) petitions ; (2) signatures : (a) presbyterian church ; (b) methodist church ; (c) baptist church (separate figures for free baptists) ; (d) episcopal church or church of England ; (e.) salvation army. 4. Number of (1) petitions ; (2) signatures from each province and each territory ; name and figures for each province and each territory separately. 5. Number of separate petitions from churches, courts and temperance societies, or any other bodies signed by officials, giving name of church, court, temperance society, etc., sending such petitions, with number of signatures. Presented 7th April, 1892.—*Mr. Fraser* *Printed for sessional papers only.*
- 59.** Return to an order of the House of Commons, dated 30th March, 1892, for a return showing : 1. The corps of the active militia of Canada that have been drilled (a) annually, (b) biennially, and (c) triennially, in the period 1889-1891, inclusive. 2. The number of qualified combatant officers in in each corps. 3. The number of provisionally appointed officers in each corps, specifying those whose period for qualification has expired. 4. The name, length of service and age of each commanding officer upwards of sixty years of age. 5. The actual strength of, and number of enlistments in, during the year 1891, each of the permanent corps located in Ontario, Quebec and New Brunswick. Presented 7th April, 1892.—*Mr. Hughes* *Not printed.*

VOLUME 12—*Continued.*

- 60.** Communication and petition from the Quebec Board of Trade concerning the abolition of all dues collected on tonnage in the port of Quebec, etc. Presented 11th April, 1892, by Hon. C. H. Tupper. *Not printed.*
- 60a.** Copy of certain resolutions passed at a meeting of the Halifax Board of Trade relative to the hostile legislative enactments between the Governments of Newfoundland and Canada, the desirability of arranging, if possible, a *modus vivendi*, under the terms of which the hostile tariffs and enactments of both countries should be held in abeyance, until sufficient time be given to enable diplomatic conferences to adjust the whole difficulty, etc. Presented 21st April, 1892, by Hon. C. H. Tupper. *Not printed.*
- 61.** Return to an order of the House of Commons, dated 29th February, 1892, for a detailed statement showing: 1. Traffic at Mulgrave Station for the six months ending 31st December, 1890 and 1891; also for the months of January, 1891 and 1892. The return to include sale of tickets, freight received and freight sent. 2. The number of staff employed during the said month, salaries paid and amount paid for extra labour, with the names of staff and extra labour employed. 3. Return of work done by shunting engine during said periods, and the number of men employed in shunting, and the cost. 4. If there is a yard-master at said station, when he was appointed, whether he has an assistant, and, if so, when such assistant was appointed and what pay each receives. 5. The number of men employed in the scow at the said station, their names, and whether they are paid by the hour or by the day and at what rate. Presented 13th April, 1892.—*Mr. Fraser.* *Not printed.*
- 61a.** Return to an order of the House of Commons, dated 4th April, 1892, for copies of all reports and correspondence between the department of railways and canals and the superintendents of the different services of the Intercolonial Railway, in reference to an accident to a train at Truro, in charge of Conductor H. D. Archibald, and his subsequent dismissal. Presented 11th May, 1892.—*Mr. Patterson (Colchester)* *Not printed.*
- 61b.** Return to an order of the House of Commons, dated 2nd May, 1892, for a return showing the amount of additional property purchased on or adjacent to government railways for increased accommodation or other purposes; the quantity purchased or paid for within the period from the 1st of July, 1891, to the 1st of April, 1892; the party from whom purchased; the price paid; the purpose for which the property is used or is to be used. Presented 11th May, 1892.—*Mr. McMullen.* *Not printed.*
- 61c.** Return to an Order of the House of Commons, dated 13th of April, 1892, for a return containing a statement of the expenditure out of income made for permanent improvements, extensions, additions and betterments, exclusive of works of ordinary maintenance and renewals, on account of the Intercolonial Railway from 30th June, 1881, to 1st July, 1891. The return to show such expenditure in summary form for each branch of service as nearly as can be conveniently ascertained from the accounts. Presented 25th May, 1892.—*Mr. McDougald (Pictou).*
Printed for sessional papers only.
- 61d.** Return to an order of the House of Commons, dated 9th May, 1892, for a return showing: 1. Tariffs in force on live stock on the Intercolonial Railway, and all changes in same during last five years. 2. Number of cattle shipped from Sackville, Nappan, Aulac and Amherst stations each year, with destination, distinguishing between car load lots and less than car load lots. Presented 9th June, 1892.—*Mr. Wood (Westmoreland).* *Not printed.*
- 61e.** Return to an order of the House of Commons, dated 23rd March, 1892, for copies of all evidence taken at an inquiry held at Lévis, in the month of February, 1892, respecting the discharge of Michael Quinn, a permanent employee in the shops of the Intercolonial Railway at Hadlow, Lévis; and of all correspondence between Alfred Drake, Chief Mechanical Engineer for the said railway at Hadlow, and the railway officials at Moncton, in relation to the dismissal of the said Michael Quinn. Presented 5th July, 1892.—*Mr. Guay.* *Not printed.*
- 62.** Return to an order of the House of Commons, dated 30th March, 1892, for copies of all petitions, correspondence, letters, telegrams and memoranda received since 1887, asking for or referring to the subsidizing of the Annapolis and Atlantic Railway Company or a line of railway from Liverpool and Shelburne to Annapolis, passing through Caledonia. Presented 13th April, 1892.—*Mr. Forbes.* *Not printed.*
- 63.** Return to an order of the House of Commons, dated 28th March, 1892, for a return of all petitions of boards of trade, railway companies, and documents generally, concerning the construction of a new bridge across the Lachine Canal at Montreal. Presented 13th April, 1892.—*Mr. Curran.*
Not printed.

VOLUME 12—*Continued.*

- 63a.** Return to an order of the House of Commons, dated 11th May, 1892, for copies of all documents, memorials and correspondence between the government and the corporation and board of trade of the town of Sorel and other persons, respecting the granting of a subsidy for the construction of a bridge on the Richelieu River to connect the town of Sorel with the Montreal and Sorel Railway. Presented 25th May, 1892.—*Mr. Bruneau*..... *Not printed.*
- 64.** Return to an order of the House of Commons, dated 23rd March, 1892, for copies of correspondence exchanged between the government and the postmaster of St. Césaire, county of Rouville, or any other person, with reference to deposits of money to be made by the said postmaster. Presented 19th April, 1892.—*Mr. Brodeur*..... *Not printed.*
- 65.** Return to an order of the House of Commons, dated 18th June, 1891, for a return showing the amount of money expended, and the year of expenditure, in each electoral district since confederation, under the following heads: 1. Public buildings. 2. Harbours and rivers. 3. Roads and bridges. Presented 26th April, 1892.—*Mr. Landerkin*..... *Printed for sessional papers only.*
- 66.** Return to an order of the House Commons. dated 1st July, 1891, for a return of all correspondence, telegrams, letters, reports, estimates and other documents relating to the surveys for, and construction and cost of a sub-marine tunnel between Prince Edward Island and the mainland. Presented 27th April, 1892.—*Mr. Davies*..... *Not printed*
- 66a.** Return to an order of the House of Commons, dated 23rd March, 1892, for all correspondence, reports, etc., which may have taken place between the government of Canada and Sir Douglas Fox, or any other engineer, since the 1st day of September, 1891, having reference to building a tunnel from Prince Edward Island to the mainland across the Straits of Northumberland. Presented 3rd May, 1892.—*Mr. Perry*..... *Printed for sessional papers only.*
- 67.** Return to an order of the House of Commons, dated 9th March, 1892, that a map of the Dominion be laid upon the table showing the boundaries of townships, counties and electoral divisions in each province, and the number of votes polled in each township for each candidate at the general election in March, 1891. Presented 27th April, 1892.—*Mr. Mills (Bothwell)*..... *Not printed.*
- 68.** Return to an address of the House of Commons to his excellency the Governor General, dated 14th March, 1882, for copies of all correspondence between the government of Canada or any member thereof, and the British government, or between the government of Canada and any person or persons, relating to the admission of live cattle from the United States. Also for copies of all orders in council relating to the same. Presented 29th April, 1892.—*Mr. Somerville*.
Printed for sessional papers only.
- 69.** Return to an order of the House of Commons, dated 14th March, 1892, for a return of copies of all tenders received for engraving and printing since 1882, and of all contracts entered into for the same, including the contract beginning in this present year; also all correspondence relating to the subject since 1882. Presented 3rd May, 1892.—*Mr. Somerville*..... *Not printed.*
- 70.** Return to an address of the House of Commons to his excellency the Governor General, dated 30th March, 1892, for a return of all correspondence, telegrams or other documents between the government of Canada and the imperial government or the government of Newfoundland, or between any member or representative of either of such governments respecting the admission of Newfoundland into the dominion of Canada; including all correspondence or telegrams to and from the high commissioner on the subject; and all reports to and minutes of council thereon. Also copies of any terms or offers which may have been submitted to the government of Newfoundland or any member thereof, with respect to the admission of that island into the dominion. Presented 4th May, 1892.—*Mr. Davies*..... *Printed for sessional papers only.*
- 71.** Return to an address of the House of Commons to his excellency the Governor General, dated 10th March, 1892, for copies of all correspondence, memorials, departmental orders, and orders in council respecting the north-western, northern and eastern boundaries of the province of Quebec, received or passed during the last five years and not already laid before this House, together with all the reports of surveys or explorations ordered thereon by the government of Canada during the same period. Presented 5th May, 1892.—*Sir H. Langevin*.
Printed for sessional papers only.
- 72.** Return to an address of the House of Commons to his excellency the Governor General, dated 9th May, 1892, for a copy of the instructions appended to commission of the lieutenant governors of the provinces of Canada. Presented 9th May, 1892.—*Mr. Lawrier*..... *Not printed.*

VOLUME 12—*Continued.*

- 73.** Return to an order of the House of Commons, dated 14th March, 1892, for a return of all correspondence, engineers' reports, petitions or other documents relating to the survey or deepening of the channel of the Galops Rapids, and for a statement of the work performed by the chain tug "Iroquois," owned by the government, and of the services performed by one John Stitt, in connection with said tug. Presented 9th May, 1892.—*Mr. Somerville*.....*Not printed.*
- 73a.** Return to an order of the House of Commons, dated 11th March, 1892, for a return of all surveys, plans, specifications, contracts, reports and papers connected with the new channel in the Galops Rapids. 2. All reports of engineers as to the striking of steamer "Traveller" in Galops Rapids, in October, 1889. 3. All reports from any steamboat captain who may have reported as to the state of said channel. 4. Statement of cost of investigation by engineers in 1891. 5. Reports from engineers sent to investigate said channel in 1891. 6. Copies of evidence given as to the depth, quantities, etc. Presented 30th May, 1892.—*Mr. Reid*.....*Not printed.*
- 74.** Return to an address of the House of Commons to his excellency the Governor General, dated 4th April, 1892, for copies of the original letters patent of incorporation of the Dominion Cotton Mills Company (Limited), and of the supplementary letters patent increasing the capital stock of the said company from \$100,000 to \$5,000,000, and copies of all correspondence, petitions, statements and evidence submitted to the government in support of the issue of such supplementary letters patent. And also for copies of the original letters patent incorporating the Canadian Coloured Cotton Mills Company (Limited), and of the supplementary letters patent increasing the capital stock of the said company from \$100,000 to \$5,000,000, and copies of all correspondence, petitions, statements and evidence submitted to the government in support of the issue of said supplementary letters patent. Presented 9th May, 1892.—*Mr. Edgar*.....*Not printed.*
- 75.** Return to an order of the House of Commons, dated 2nd May, 1892, for all correspondence concerning the appointment of Mr. W. H. Ingram as Collector of Customs at St. Thomas, Ont. Presented 10th May, 1892.—*Mr. Casey*.....*Not printed.*
- 76.** Return to an address of the House of Commons to his excellency the Governor General, dated 2nd May, 1892, for copies of all correspondence, memorials and documents exchanged between the government, or any member thereof, and any persons, companies or corporations as to the propriety or advisability of relieving or recouping the county of Pontiac railway indebtedness. Presented 11th May, 1892.—*Mr. Murray*.....*Not printed.*
- 77.** Return to an order of the House of Commons, dated 2nd May, 1892, for a detailed copy of the certificate of acting chief engineer that \$32,000 paid to Bancroft & Connolly was done in addition to all previous certificates on Kingston Graving Dock, as mentioned in Auditor General's Report, page C—119. Presented 12th May, 1892.—*Mr. Gibson*.....*Not printed.*
- 78.** Return to an order of the House of Commons, dated 14th March, 1892, for : 1. Copy of the circular issued on the 10th June, 1891, by the department of marine, relative to sick mariners' dues in Canada. 2. A list of persons to whom such circular was addressed. 3. Copy of all answers received. Presented 16th May, 1892.—*Mr. Laurier*.....*Not printed.*
- 79.** Report of the Royal Commission appointed to investigate the working of Civil Service Act, and other matters connected with the Civil Service generally. Presented 20th May, 1892, by Sir John Thompson.....*See No. 16c.*
- 80.** Return to an address of the House of Commons to his excellency the Governor General, dated 2nd May, 1892, for a return stating, for the last year (1891) : 1. The number of applications which were made to the railway committee of the privy council for an adjudication, order or direction respecting any of the matters or things which, under the provisions of the Railway Act, the railway committee had power or authority to deal with. 2. Showing in general terms the nature of the application. 3. The names of the members of the honourable the privy council who (a) Heard each of the applications ; (b) Who were present at any one or more adjourned hearings thereof, and at the final adjudication thereof ; (c) In cases in which adjournments took place, the dates of hearing, and subsequent adjournment or adjournments of final adjudication. 4. Statement showing how each of said applications was disposed of, viz. : Granted or refused, or partially granted. Presented 25th May, 1892.—*Mr. McCarthy*.....*Not printed.*
- 80a.** Return to an address of the House of Commons to his excellency the Governor General, dated 2nd May, 1892 : 1. For a statement of all applications or complaints made to the railway committee of the privy council respecting the matters or things referred to in sub-sections (k), (l), (m), (n) and

VOLUME 12—*Continued.*

- (p) of clause eleven of the Railway Act. 2. By or against whom such complaints were made. 3. The manner in which the same were dealt with or disposed of. Presented 25th May, 1892.—*Mr. McCarthy*. *Not printed.*
- 81.**—(1891.) Return to an address of the House of Commons to his excellency the Governor General, dated 3rd June, 1891, for copies of all correspondence between the imperial government and the government of Canada, on the subject of the copyright laws of Canada, and all other papers relating thereto, not already brought down. Presented 24th August, 1891.—*Mr. Edgar*.
Printed for sessional papers only.
- 81.** Return (in part) to an order of the House of Commons, dated 23rd March, 1892, for a return showing which of the dominion buildings in Canada are lighted by electricity; the respective system used in each such building, whether arc or incandescent; the number of sixteen candle-power lamps or their equivalents used in each such building; the cost per lamp of sixteen candle power or equivalent in each building; and the average annual cost for lighting each such building. Also showing in what buildings the plants are owned and maintained by the government, and in cases where not so owned and maintained, from whom the current is obtained or supplied, and whether from central station or private parties; also whether in cases of leased currents the renewal lamps are supplied at government expense, and if so, in what buildings and at what annual cost; also the names of the parties contracting to light any of such buildings, with the names of the buildings, and the dates and duration of each such contract. Also showing which of the public buildings of the dominion are lighted with gas, and the annual cost of lighting each such building. Presented 25th May, 1892 *Not printed.*
- 82.** Return to an order of the House of Commons, dated 2nd May, 1892, for a return giving all papers, letters, petitions, applications and every other document relating to the dismissal of the postmaster of Eugenia, and the appointment of his successor. Presented 30th May, 1892.—*Mr. Landerkin*.—*Not printed.*
- 83.** Return to an order of the House of Commons, dated 16th May, 1892, for a return showing the names of the mail conductors superannuated, their number of years of service, the salary given to each of them during the last year of service, and also the names of those who have had several years added to their period of service. Presented 30th May, 1892.—*Mr. Brodeur*. *Not printed.*
- 84.** Return to an order of the House of Commons, dated 1st March, 1892, for a return showing the number of royal commissions that have been issued in each and every year since confederation, and to whom issued, together with the subject inquired into, giving the cost of each and the total cost of all. Presented 1st June, 1892.—*Mr. Landerkin*. *Printed for sessional papers only.*
- 84a.** Supplementary return to an order of the House of Commons, dated 1st March, 1892, for a return showing the number of royal commissions that have been issued in each and every year since confederation, and to whom issued, together with the subject inquired into, giving the cost of each and the total cost of all. Presented 9th June, 1892.—*Mr. Landerkin*.—
Printed for sessional papers only.
- 85.** Statement of number of hours of setting upon the daily Senate *Hansard*, and number of ems set, including corrections, up to 20th May. Presented 2nd June, 1892, by Hon. Sir J. C. Abbott.—*Not printed.*
- 86.** Return to an address of the House of Commons to his excellency the Governor General, dated 25th April, 1892, for a copy of the petition presented and filed in the supreme court of Nova Scotia, under the Dominion Controverted Elections Act, against the election and return of Joseph A. Gillies, for the county of Richmond, Nova Scotia, at the general election holden on the 5th March, 1891; together with the dates of filing and service of such petition; and also all papers and documents in connection with the following proceedings in the supreme court of Nova Scotia: 1. Application to the honourable the chief justice extending the time for setting the petition down for trial. 2. Application to set the petition down for trial returnable before the Honourable Mr. Justice Weatherbe, and the Honourable Mr. Justice Graham, but heard by the Honourable Judge Weatherbe, sitting alone, on the 19th day of November, 1891. 3. The order made by the said Judge Weatherbe, sitting alone, for the trial of the said petition, fixing the 8th of December, 1891, the date for said trial. 4. The notice of appeal, dated 28th November, 1891, from this decision of the Honourable Judge Weatherbe, to the supreme court of Nova Scotia, the grounds of appeal being as follows: (a) Because there was no jurisdiction to make said order, or the portion

VOLUME 12—*Continued.*

thereof extending time; (h) Because six months had elapsed since the presentation of the petition; (e) Because the time and place of trial were not fixed within six months from the presentation of the petition; (d) Because the extension of time granted by said order was not made on application for that purpose, supported by affidavits, and it does not appear from such order, and it was not made to appear when the same was made, that the requirements of justice rendered such enlargement necessary; (e) Because the respondent had no notice of any application to extend the time for the commencement of the trial herein; (f) Because one judge has no jurisdiction to fix the time and place of trial; (g) Because the trial of the petition cannot be commenced during the term of the court at which the judges assigned to try the said petition are bound to sit. 5. The notice of motion on said appeal for the 3rd day of December, 1891. 6. The appointment by the Honourable Judge Weatherbe, then senior judge, for a hearing before the supreme court on the said 3rd day of December, 1891. 7. The postponement of this hearing until a later day. 8. The judgment of the supreme court upon this case. 9. The rule of the supreme court, dated the 19th day of December, 1891, setting aside the order of the Honourable Judge Weatherbe fixing the date of the trial of said petition. 10. The date on which the Honourable Judge Weatherbe and the Honourable Judge Graham received a copy of the order of the supreme court setting aside the said order of Judge Weatherbe for trial. 11. The date on which the said judges reported to the Honourable the Speaker of the House of Commons that the said petition had been heard by them, and that they had declared the election of the said Joseph A. Gillies void, and his seat in parliament vacant. 12. The date upon which application was made to the Honourable Judge Weatherbe to defer the decision in the petition pending the decision of the supreme court of Nova Scotia on the question of jurisdiction, and the refusal of this application. Also copies of the several petitions presented and filed in the supreme court of Nova Scotia under the Dominion Controverted Elections Act, against the election and return of Hon. Sir John Thompson, Hon. C. H. Tupper, Mr. C. E. Kaulbach, Mr. J. B. Mills, Mr. N. W. White and Mr. Hugh Cameron, for six of the several counties of the province of Nova Scotia, at the general election held on the 5th March, 1891. Also all papers and documents in connection with the various proceedings in the said cases in the supreme court of Nova Scotia. Presented 3rd June, 1892.—*Mr. Gillies and Mr. Forbes.*

Not printed.

87. Return to an address of the House of Commons to his excellency the Governor General, dated 30th March, 1892, for copies of all accounts, claims and certificates presented and transmitted (from 1st July, 1885, to this day) to the dominion government, by each of the judges of the superior court for the province of Quebec, in his capacity as such, for all travelling expenses and hotel expenses, in any place other than that in which such judge had orders to reside, or did in fact reside, either for sitting or for acting therein, or for holding therein (in such capacity) any court in civil, criminal or other matters; together with a detailed statement of the several sums paid in conformity with such accounts, claims and certificates. Presented 3rd June, 1892.—*Mr. Flint.*

Not printed.

88. Further supplementary return to an address of the Senate, to his excellency the Governor General, dated 14th September, 1891, for all correspondence between his excellency the Governor General and the Lieutenant Governor of the province of Quebec, in connection with the Baie des Chaleurs Railway, and all other papers and correspondence in the possession of the government on that subject. Presented 31st May, 1892.—*Hon. Mr. Miller.*.....*Not printed.*

89. Return to an order of the House of Commons, dated 25th April, 1892, for a return of the amount of crude cotton-seed oil imported into Canada during the year 1891; also the amount of refined cotton-seed oil imported into Canada during the year 1891. Presented 7th June, 1892.—*Mr. McKay.*

Not printed.

90. Return to an address of the Senate to his excellency the Governor General, dated 5th May, 1892, for copies of all letters, communications and reports in the possession of the government, having relation to the fixing of a standard of time, and which have been received subsequent to May, 1891. Presented 14th June, 1892.—*Hon. Mr. Sullivan.*.....*Not printed.*

91. Return to an order of the House of Commons, dated 10th June, 1892, for a copy of the Reports of the British Farm Delegates, Messrs. McQueen and Davey, on the Maritime Provinces. Presented 15th June, 1892.—*Mr. McMillan (Huron).*.....*Not printed.*

92. Return to an order of the House of Commons, dated 15th June, 1892, for a copy of the minutes of the evidence taken at the trial, under the Dominion Controverted Elections Act, of the case of A. Sturton *et al*, petitioners, vs. P. V. Savard, defendant, in relation to the election for the counties of Chicoutimi and Saguenay, in the year 1891. Presented 15th June, 1892.—*Sir John Thompson.*

Not printed.

VOLUME 12—*Continued.*

93. Return to an order of the House of Commons, dated 18th June, 1891, for copies of all papers and correspondence in the department of marine and fisheries, relating to the saving of the lives of part of the crew of H.M.S. "Lily," wrecked on the coast of Labrador, in September, 1889. Presented 17th June, 1892.—*Mr. Edgar*..... *Not printed.*
94. Return to an address of the House of Commons to his excellency the Governor General, dated 10th August, 1891, for copies of all orders in council, memorials, correspondence and documents respecting the rock-slide from the citadel at Quebec, on the 19th September, 1889. Presented 24th June, 1892.—*Mr. Frémont*..... *Not printed.*
95. Return to an order of the House of Commons, dated 4th April, 1892, for: 1. Return of all correspondence, papers, complaints or memoranda of any kind in relation to "The Temperance Colonization Society," received since or not included in a return furnished the House in 1890. 2. List of all stockholders of the company, 1st May, 1885, with amounts paid on calls of the shares, whether in cash, land credits, or otherwise, each year to date, stating what shares were forfeited, when and why. 3. List of stockholders at date of return, showing when they became such, with dates and amount of shares purchased, with price per share. (a) Number of calls on all shares, with details, dates, etc. 4. Amount earned in fees by directors each year to date. 5. Amount of money invested each year, and in what. (a) Total amount received on account of scrip and land sales to date. 6. List of scrip holders, with post office address, who purchased from the company (scrip issued) prior to 1st June, 1882, and since that date, giving date of issue, amount of land purchased by each, price per acre, amount paid thereon to date; showing if cancelled, when and on what conditions. 7. List of all other contracts for purchase of land issued, whether exchanged for scrip, amounts paid to date, whether contract is still in existence, why cancelled, and when. 8. Amount and details of land sales now current and for which land is to be supplied by the company. 9. List of all persons whose scrip was located on even-numbered sections in 1883, showing where located, new location subsequently, if any, with form of contract of even-numbered location. 10. List of homestead settlers in 1885. List at date (actual residents). 11. When contract with the company and government expired, with conditions of extension, if any; conditions of final settlement. 12. List of lands to be conveyed to the company under such settlement. The foregoing information to be furnished, if practicable, under affidavit of the president and accountant. Presented 30th June, 1892.—*Mr. Sproule*..... *Not printed.*
96. Census of Canada.—Bulletin No. 11. Nationalities. Birth places of the people. Presented 30th June, 1892, by Hon. J. Carling..... *Not printed.*
97. Return to an address of the House of Commons to his excellency the Governor General, dated 2nd May, 1892, for a copy of location ticket granted to John Alexander McLellan, of Cockburn Island, for lot 15 in the 5th concession, Cockburn Island; copy of all affidavits or declarations, letters and other papers from any person or persons to the department, or any officer of the department, in any way relating to said lot or the cancellation of the said ticket; and copy of any order made for the cancellation of said ticket. Also for a copy of the location ticket granted for lot 16 in the 4th concession, Cockburn Island, and any assignment or transfer thereof to Peter McLellan; copy of affidavits or declarations, letters and other papers from any person or persons to the department in any way relating to said lot or the cancellation of the said ticket, and copy of any order made for the cancellation of said ticket. Presented 5th July, 1892.—*Mr. Lister*..... *Not printed.*
98. Return to an order of the House of Commons, dated 28th March, 1892, for a return showing: 1. The number of Indian reserves in British Columbia. 2. The location of each and name of tribe to whom allotted. 3. The area in acreage of each. 4. The area cultivated on each reserve. 5. The population of each tribe when reserves were first established. 6. The present population of each tribe. 7. The area (estimated) of pastoral land on each reserve. 8. The number of horses, cattle and sheep owned by each tribe. 9. The estimated area of timber land on each reserve. Presented 5th July, 1892.—*Mr. Barnard*..... *Not printed.*
99. Copy of a report of a committee of the honourable the privy council, approved by his excellency the Governor General in council, on the 17th June, 1892, on the subject of a despatch dated 4th November, 1891, from Lord Knutsford, inviting an expression of the views of the Canadian government upon the complaint of alleged discrimination on the part of the government of Canada against citizens of the United States in the matter of canal tolls. Presented 6th July, 1892, by Sir John Thompson..... *Printed for sessional papers only.*

VOLUME 12—*Continued.*

- 100.** Return to an address of the Senate to his excellency the Governor General, dated 19th June, 1892, for a return of subsidy paid the Albert Southern Railway Company, showing the dates when paid, and to whom paid; also copies of all correspondence in reference to the payment of the said subsidy, and of all letters or telegrams asking for payment of same or relating thereto; also copies of all returns or reports of government engineers or inspectors, who inspected or reported on said road. Presented 6th July, 1892.—*Hon. Mr. Power*.....*Not printed.*
- 101.** Return to an order of the House of Commons, dated 9th May, 1892, for a return showing: 1. The total number of acres of public lands granted in Manitoba and the Canadian North-West in aid of railway construction, up to 26th April, 1892. 2. The name of each railway company or line to which a land grant has been made; the length of each line thus aided by land grant, and the number of acres granted to each company or line. 3. The total number of acres of land in Manitoba and the Canadian North-West which have been earned up to 26th April, 1892, under provisions of grants through completion of lines or portions of lines to which land grants have been made. 4. The name of each railway company or line which has earned the whole or a portion of its land grant, with the number of acres earned by each of such lines. Presented 9th July, 1892.—*Mr. Charlton*.....*Not printed.*
- 102.** Return to an order of the House of Commons, dated 21st March, 1892, for a map of Canada showing the areas of spruce and white pine timber, respectively, now standing. Presented 9th July, 1892.—*Mr. Ives*.....*Not printed.*
- 103.** Return to an address of the House of Commons to his excellency the Governor General, dated 25th April, 1892, for copies of all resolutions and memorials passed by the North-West Assembly at its last session and addressed to the government. Presented 9th July, 1892.—*Mr. Davin*..*Not printed.*
- 104.** Return to an address of the House of Commons to his excellency the Governor General, dated 21st March, 1892, for copies of all letters, correspondence, petitions, etc., relating to the claims or settlement, or proposed settlement of claims of settlers on the Waldron Rancho Company's territory; copies of all complaints made regarding the treatment settlers have been subject to by the company. Presented 9th July, 1892.—*Mr. McMullen*.....*Not printed.*
- 105.** Return to an order of the House of Commons, dated 28th March, 1892, for a return showing the quantity of binding twine imported for consumption in the Dominion, from the 1st of July, 1891, up to the first day of January, 1892; the country from which the same was imported, and the amount of duty paid thereon. Presented 9th July, 1892.—*Mr. Campbell*.....*Not printed.*

ANNEX

TO THE REPORT OF THE MINISTER OF AGRICULTURE FOR THE YEAR 1891.

MORTUARY STATISTICS
OF THE
PRINCIPAL CITIES AND TOWNS OF CANADA
FOR THE YEAR 1891.

Printed by Order of Parliament.

ANNEXE

AU RAPPORT DU MINISTRE DE L'AGRICULTURE POUR L'ANNÉE 1891.

STATISTIQUE MORTUAIRE
DES
PRINCIPALES VILLES DU CANADA
POUR L'ANNÉE 1891.

Imprimé par Ordre du Parlement.



OTTAWA

PRINTED BY S. E. DAWSON, PRINTER TO THE QUEEN'S MOST
EXCELLENT MAJESTY

1892

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TABLE OF SUBJECTS.

INTRODUCTION.....	Pages iv and vii
TABLE I.—Diseases or other causes of death, sexes, civil conditions and ages.....	“ 2 to 121
TABLE II.—Diseases in the order of fatality..	“ 124 to 195
TABLE III.—Deaths of illegitimate children.....	“ 198 and 199
TABLE IV.—Ratios of Mortality to ages.....	“ 202 and 203
TABLE V.—“ according to classes of occupations.....	“ 206 and 207
TABLE VI.—Comparative mortality by months.....	“ 210 and 211
TABLE VII.—“ “ from 15 principal causes of death by 1,000 of the population.....	“ 214 and 215
TABLE VIII.—Comparative mortality from 15 principal causes of death, by 1,000 deaths.....	“ 218 and 219
TABLE IX.—List of accidents with ratios to 1,000 deaths and 1,000 of population	“ 222 and 229
Index.	

REPORT OF MORTUARY STATISTICS

COLLECTED IN THE

PRINCIPAL CITIES AND TOWNS OF CANADA, FOR THE CALENDAR
YEAR 1891.

INTRODUCTION.

These statistics have been collected and compiled under authority of the "Statistics Act," in accordance with the regulations contained in the Order in Council assented to by His Excellency the Governor General, on the 26th December, 1882.

The total number of deaths returned for the several cities and towns (thirty in number) during the year 1891, is 19,494, against 19,461 for the year 1890.

In the figures above given for 1891, however, are included 97 deaths belonging to Stratford, from which city no returns had been received previous to that year. Leaving out, therefore, for purposes of comparison, these 97 deaths, the report shows that there have been actually 33 deaths less during the year 1891 than in 1890, throughout the several cities and towns.

The rate of mortality for the present year is 21.48 per 1,000 of the population, against 22.14 for the year 1890.

Amongst the principal cities which show a decrease in mortality are to be found Montreal, Toronto, Hamilton, Ottawa, Halifax, London, Kingston and Winnipeg; while Quebec, St. John, N.B. and Victoria, B.C., are amongst those showing an increase.

Of the 19,494 deaths returned, 8,224 (or 42.18 per cent of the total mortality) are due to the following five causes of death:—"Lung affections," 2,123; "diarrhœal affections," 2,101; "atrophy and debility," 1,975; "phthisis," 1,736; "cerebro-spinal diseases," 1,289. The other diseases following in the order of fatality, are "diphtheria," "enteritis and other affections of the bowels," "heart and blood vessels diseases," "diseases of the urinary organs," etc.

The total number of deaths of children under five years was 9,885, during the year 1891, or 507.0 per 1,000 deaths, against 9,525 during the year 1890, or 489.4 per 1,000 deaths. The five cities and towns having the highest rate of mortality amongst children under five years, per 1,000 deaths, are as follow:—

Hull, 705.0, Sorel, 644.3, Montreal, 625.5, Quebec, 596.3, Three Rivers, 588.6.

The five towns having the lowest rate of mortality amongst children under five years, per 1,000 deaths, are the following:—

Galt, 203.6, Belleville, 222.2, Fredericton, 227.6, Kingston, 242.1, St. Thomas, 242.8.

The total number of deaths caused by diphtheria during the year 1891, was 951, an increase of 234 as compared with the same cause for 1890. This increase was covered almost twice over by the very large mortality of the city of Quebec alone, as shown by the returns of that city which contained no less than 401 cases of diphtheria for 1891, an increase of 306 as compared with 1890. The number of deaths caused by diphtheria has also been unusually large in Guelph, Sherbrooke, Hull, St. Hyacinthe, Halifax, Stratford and Toronto.

The deaths from typhoid fever numbered 363 in 1891, a slight increase of 19 as compared with the same cause for 1890. The cities having the highest rate of mortality from this disease, per 1,000 deaths, are Winnipeg, 74.4; Toronto, 41.34; and Victoria, B.C., 40.0, for the year 1891; as compared with 69.47, 40.8 and 21.81 in the same cities respectively, for the year 1890.

RAPPORT DE LA STATISTIQUE MORTUAIRE

RECUEILLIE DANS LES

PRINCIPALES VILLES DU CANADA, POUR L'ANNÉE DE CALENDRIER 1891.

INTRODUCTION.

Cette statistique a été recueillie et compilée en vertu de "l'Acte des Statistiques," conformément aux règlements contenus dans l'arrêté du Conseil sanctionné par Son Excellence le Gouverneur Général, le 26 décembre 1882.

Le nombre total des décès dont il a été fait rapport pour les différentes villes (au nombre de trente) s'élevait à 19,494 pour l'année 1891, contre 19,461 pour l'année 1890. Dans les chiffres plus haut mentionnés pour l'année 1891, sont compris, cependant, 97 décès appartenant à la ville de Stratford, dont aucun rapport n'avait été reçu avant cette année. En déduisant, par conséquent, pour des fins de comparaison, ces 97 décès du nombre total, on verra qu'il y a eu 33 décès de moins en 1891 qu'en 1890, dans les principales villes du Canada.

Le taux de la mortalité pour l'année présente est de 21.48 pour chaque 1,000 de la population, contre 22.14 durant l'année 1890.

Au nombre des villes les plus importantes qui montrent une diminution sur la mortalité de 1890 se trouvent les suivantes:—Montréal, Toronto, Hamilton, Ottawa, Halifax, London, Kingston et Winnipeg; tandis que Québec, St. Jean, N.-B. et Victoria, C.-B., se trouvent au nombre des villes ayant une mortalité plus élevée qu'en 1890.

Des 19,494 décès dont il a été fait rapport, 8,224 (soit 42.18 pour 100 de la mortalité totale) ont eu pour cause les cinq maladies suivantes:—*Affections pulmonaires*, 2,123; *diarrhées*, 2,101; *atrophie et débilité*, 1,973; *phthisie*, 1,736; *affections cérébro-spinales*, 1,289. Les autres maladies qui suivent dans l'ordre de la fatalité sont:—la *diphtérie*, les *entérites* et autres *maladies des intestins*, les *maladies du cœur* et des *vaisseaux sanguins*, les *maladies des voies urinaires*, etc.

Le nombre total des décès d'enfants au-dessous de cinq ans, s'élevait à 9,885 pour l'année 1891, soit 507.0 par 1,000 décès; contre 9,525 décès pour l'année 1890, soit 489.4 par 1,000 décès. Les cinq villes ayant le taux de mortalité le plus élevé chez les enfants au-dessous de cinq ans, par 1,000 décès, sont les suivantes:—

Hull, 705.0, Sorel, 644.3, Montréal, 625.5, Québec, 596.3, Trois-Rivières, 588.6.

Les cinq villes ayant le taux de mortalité le plus bas chez les enfants au-dessous de cinq ans, par 1,000 décès, sont:—

Galt, 203.6, Belleville, 222.2, Frédérickton, 227.6, Kingston, 242.1, St. Thomas, 242.8.

Le nombre total des décès ayant eu pour cause la diphtérie s'est élevé, durant l'année 1891, à 951, soit une augmentation de 234 sur les décès de 1890 ayant eu pour cause la même maladie.

Cette augmentation est presque deux fois couverte par la très grande mortalité de la ville de Québec, dont les rapports ne contenaient pas moins de 401 décès causés par la diphtérie en 1890.

La mortalité causée par cette maladie est aussi plus élevée que d'ordinaire dans Guelph, Sherbrooke, Hull, St. Hyacinthe, Halifax, Stratford et Toronto.

Le nombre de décès causés par la fièvre typhoïde s'élevait à 363 en 1891, soit une augmentation de 19 sur la mortalité de 1890, ayant eu pour cause la même maladie. Les villes qui montrent le taux le plus élevé de la mortalité causée par la fièvre typhoïde, sont, par 1,000 décès:—Winnipeg, 74.4; Toronto, 41.34, et Victoria, C.-B., 40.0 en 1891; contre 69.47, 40.8 et 21.81, pour les mêmes villes respectivement, en 1890.

TABLE I.

DISEASES OR OTHER CAUSES OF DEATH, SEXES, CIVIL CONDITIONS
AND AGES.

TABLERAU I.

MALADIES OU AUTRES CAUSES DE DÉCÈS, SEXES, ÉTATS CIVILS
ET AGES.

TABLE I.

CITY OF MONTREAL.

DISEASES OR OTHER CAUSES OF DEATH. — MALADIES OU AUTRES CAUSES DE DÉCÈS.		SEXES.			CIVIL CONDITIONS. — ÉTATS CIVILS.		
		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Veu- vage.	Non- ma- riés.
ZYMOTIC.	ZYMOTIQUES.						
1 Small-Pox	Variole						
2 Measles	Rougeole	33	24	57			57
3 Scarlet Fever	Fièvre scarlatine	9	1	10			10
4 Diphtheria	Diphtérie	34	32	66	2		64
5 Catarrhal Affections	Affections catharrales	22	10	32	14	4	14
6 Typhus, Enteric or Typhoid and continued fevers.....	Typhus, fièvres Typhoides et fièvres continues.....	40	34	74	19	1	54
7 Whooping Cough	Coqueluche.....	15	20	35			35
8 Diarrhœal Affections.....	Diarrhées.....	517	478	995	9	8	978
9 Remittent Fever.....	Fièvre remittente.....						
10 Other Malarial Diseases	Malaria	2		2	1		1
11 Syphilis	Syphilis	7	7	14	2		12
12 Erysipelas	Erysipèle.....	5	6	11	4		7
13 Puerperal Fever.....	Fièvres puerpérales.....		13	13	11		2
14 Septicæmia.....	Septicémie	5	8	13	5	1	7
15 Other Zymotic Diseases	Autres maladies zymotiques.....	4		4	1		3
PARASITIC.	PARASITIQUES.						
16 Thrush	Aphthes.....						
17 Worms and other Parasites.....	Vers et autres parasites.....	1	1	2			2
DIETIC.	DIÉTITIQUES.						
18 Privation of Food.....	Défaut d'alimentation.....	2	4	6			6
19 Scurvy	Scorbut	1		1			1
20 Alcoholism	Ivrognerie	8	4	12	6		6
CONSTITUTIONAL.	CONSTITUTIONNELLES.						
21 Rheumatism	Rhumatisme.....	11	10	21	11	4	6
22 Purpura	Purpura		1	1			1
23 Anæmia.....	Anémie	88	86	174	12	4	158
24 Cancer	Cancer.....	46	53	99	60	20	19
25 Scrofula and other forms of Tuberculosis.....	Scrofules et autres formes de Tubercule.....	49	50	99	19	3	77
26 Phthisis	Phthisie.....	218	258	476	197	34	245
27 Hydrocephalus.....	Hydrocéphalie.....	23	16	39	1		38
28 Other Constitutional Diseases.....	Autres mal. constitutionnelles.....	5	6	11	2		9
DEVELOPMENTAL.	D'ÂGES.						
29 Premature Birth.....	Naissance prématurée.....	122	85	*208			208
30 Cyanosis.....	Cyanosis	4	1	5			5
31 Malformations.....	Difformités	4	2	6			6
32 At Birth	A la naissance.....	20	12	32			32
33 Child Birth.....	Accouchement		15	15	11		4
34 Old Age.....	Veillesse	30	32	62	16	44	2
35 Other Developmental	Autres maladies d'âges.....						

*1, sex not given.—1 Sexe non donné

TABLEAU 1.

CITÉ DE MONTRÉAL.

[illegible]

TABLE I.

CITY OF MONTREAL.

Continued.

DISEASES OR OTHER CAUSES OF DEATH. — MALADIES OU AUTRES CAUSES DE DÉCÈS.		SEXES.			CIVIL CONDITIONS. — ÉTATS CIVILS.		
		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Veu- vage.	Non- ma- riés.
LOCAL.	LOCALES.						
36 Cerebro Spinal Affections....	Affections cérébro-spinales...	252	214	466	50	22	394
37 Apoplexy.....	Apoplexie.....	22	24	46	27	13	6
38 Paralysis.....	Paralyse.....	37	58	95	38	41	16
39 Insanity.....	Folie.....	2	2	4	2	1	1
40 Epilepsy and Convulsions.....	Épilepsie et convulsions.....	74	75	149	12	1	136
41 Heart and Blood Vessels Disea- ses.....	Maladies du cœur et des vais- seaux sanguins.....	124	141	265	111	65	89
42 Lung diseases.....	Affections pulmonaires.....	353	350	703	127	79	497
43 Quinsy.....	Angine.....	2	5	7	1		6
44 Throat Affections.....	Affections de la gorge.....	47	45	92	2		90
45 Stomach diseases.....	Maladies de l'estomac.....	19	17	36	10	5	21
46 Enteritis and other Affections of the Bowels.....	Entérites et autres maladies d'intestins.....	159	141	300	18	12	270
47 Peritonitis.....	Péritonite.....	16	21	37	15	3	19
48 Liver diseases.....	Maladies du foie.....	25	23	48	17	10	21
49 Spleen diseases.....	Maladies de la rate.....						
50 Dentition.....	Dentition.....	47	51	98			98
51 Diseases of the Urinary organs.....	Maladies des voies urinaires.....	62	50	112	59	19	34
52 Diseases of the Uterus.....	Maladies de l'utérus.....		14	14	7		7
53 Carbuncle.....	Anthrax.....						
54 Synovitis.....	Synovitis.....						
55 Joint diseases.....	Maladies des articulations.....	4	3	7	1		6
56 Skin diseases.....	Maladies de la peau.....	4	4	8			8
57 Other local diseases.....	Autres affections locales.....	8	2	10	2	1	7
VIOLENT.	VIOLENTES.						
58 Fractures and contusions.....	Fractures et contusions.....	10	4	14	4	2	8
59 Gunshot and wounds.....	Blessures et armes à feu.....	3	1	4		1	3
60 Burns and Scalds.....	Brûlures.....	5	5	10	3		7
61 Poison.....	Empoisonnements.....	2		2		1	1
62 Drowning.....	Noyades.....	12	1	13	4		9
63 Suffocation.....	Suffocation.....	40	15	55	1		54
64 Railway accidents.....	Accidents par les ch. de fer.....	8		8	3	1	4
65 Other accidents.....	Autres accidents.....	30	5	35	11	1	23
66 Infanticide.....	Infanticide.....						
67 Suicide.....	Suicide.....	4	2	6	2	1	3
68 Homicide.....	Homicide.....	1		1	1		
69 Hanged (Judicial).....	Exécutions de haute justice.....						
ILL-DEFINED AND NOT SPECIFIED CAUSES.	CAUSES INDÉFINIES ET NON SPÉCIFIÉES.						
70 Dropsy.....	Hydropisie.....	8	17	25	9	8	8
71 Abscess.....	Abscès.....	4	3	7	3	1	3
72 Hemorrhage.....	Hémorrhagie.....	9	4	13	2	1	10
73 Atrophy and Debility.....	Atrophie et débilité.....	397	387	784	32	57	695
74 Sudden (Unascertained).....	Subite—causes inconnues.....						
75 Not specified and ill-defined..	Non spécifiées et indéfinies..	10	12	22	10	3	9
Totals.....	Totaux.....	3,125	2,965	6,091	987	472	4,632

TABLEAU I.		CITÉ DE MONTRÉAL.															Suite.	
Still Born.	A G E S.																	
	Un- der 1 year.	1 to 2.	2 to 3.	3 to 4.	4 to 5.	Total under 5.	5 to 10.	10 to 15.	15 to 20.	20 to 25.	25 to 35.	35 to 45.	45 to 55.	55 to 65.	65 to 75.	75 and over.	Not given.	
	Au- des- sous de 1 an.	1 à 2.	2 à 3.	3 à 4.	4 à 5.	Total au- des- sous de 5.	5 à 10.	10 à 15.	15 à 20.	20 à 25.	25 à 35.	35 à 45.	45 à 55.	55 à 65.	65 à 75.	75 et plus.	Non don- nés.	
	216	57	24	16	10	323	32	17	6	5	17	15	16	16	11	8	36	
	1	1				1		1		1	2	2	12	8	13	7	37	
											3	5	11	12	30	31	38	
	83	17	9	6	3	118	8	1	2	3	7	2	2	4	1	1	39	
												1	1	1			40	
	16	1	1	1	1	20	9	7	11	5	19	24	39	45	53	33	41	
	215	102	45	25	24	411	27	6	8	10	27	28	39	39	45	63	42	
	3	1	1			5	1					1					43	
	8	19	15	18	14	74	14	2				1			1		44	
	13	3	2		1	19				1	1	4	2	4	4	1	45	
	226	26	4	1	1	258	5	1	2		5	4	6	3	9	7	46	
	3				1	5	3	2	2	3	8	6	4	1	3		47	
	11	2	1	2		16				1	2	7	12	3	7		48	
	52	43	3			98											49	
	4		1		1	6	5	4	2	6	13	15	18	18	15	10	50	
									2	3	4	2	2	1			51	
								1	2	1	1	1	1				52	
	4	1	1			6			2	1	1	1	1	1			53	
	3					3	2		1		2		1	1			54	
																	55	
																	56	
																	57	
		1	2			3			1		2	2	2	2	1	1	58	
		3	1		2	6	2		1	1	1		1		1		59	
		1				1							1				60	
							1	3	1	1	4		2	1			61	
	52	1				53				1			1				62	
																	63	
								1		1	2	3	1				64	
	8	1	1		1	11	3		3	2	2	4	4	3	2	1	65	
																	66	
											2	2	1		1		67	
												1					68	
																	69	
		2				2		2			1	2	5	3	6	4	70	
	9					9				1	1	2		1	1		71	
	646	19	7	3	1	676	4				2	2	3	12	28	57	72	
																	73	
	4					4			1		5	3	2	3	3	1	74	
																	75	
324	3,007	455	155	102	92	3,811	172	82	133	151	346	265	278	245	288	320		

TABLE I.		CITY OF TORONTO.					
DISEASES OR OTHER CAUSES OF DEATH. — MALADIES OU AUTRES CAUSES DE DÉCÈS.		SEXES.			CIVIL CONDITIONS. — ÉTATS CIVILS.		
		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Veu- vage.	Non- ma- riés.
ZYMOTIC.	ZYMOTIQUES.						
1 Small-Pox.....	Variole.....						
2 Measles.....	Rougeole.....	7	7	14	1		13
3 Scarlet Fever.....	Fièvre scarlatine.....	12	22	34	1		33
4 Diphtheria.....	Diphtérie.....	90	87	177	1		176
5 Catarrhal Affections.....	Affections catharrales.....	3	4	7	3	1	3
6 Typhus, Enteric or Typhoid and continued fevers.....	Typhus, fièvres typhoïdes et fièvres continues.....	67	50	117	49	3	65
7 Whooping Cough.....	Coqueluche.....	8	10	18			18
8 Diarrhœal Affections.....	Diarrhées.....	100	83	183	6	4	173
9 Remittent Fever.....	Fièvre remittente.....	1		1			1
10 Other Malarial Diseases.....	Malaria.....	1		1			1
11 Syphilis.....	Syphilis.....	6	6	12			12
12 Erysipelas.....	Erysipèle.....	7		7	4	1	2
13 Puerperal Fever.....	Fièvres puerpérales.....		5	5	5		
14 Septicæmia.....	Septicémie.....	12	16	28	15		13
15 Other Zymotic Diseases.....	Autres maladies zymotiques.....						
PARASITIC.	PARASITIQUES.						
16 Thrush.....	Aphthes.....	1	1	2			2
17 Worms and other Parasites.....	Vers et autres parasites.....		2	2			2
DIETIC.	DIÉTIQUES.						
18 Privation of Food.....	Défaut d'alimentation.....						
19 Scurvy.....	Scorbut.....						
20 Alcoholism.....	Ivrognerie.....	1	1	2	1		1
CONSTITUTIONAL.	CONSTITUTIONNELLES.						
21 Rheumatism.....	Rhumatisme.....	2	4	6	1	2	3
22 Purpura.....	Purpura.....	2	2	4	1		3
23 Anæmia.....	Anémie.....	6	7	13	7	1	5
24 Cancer.....	Cancer.....	26	36	62	39	12	11
25 Scrofula and other forms of Tuberculosis.....	Scrofules et autres formes de Tubercule.....	18	16	34	7		27
26 Phthisis.....	Phthisie.....	104	131	235	101	9	125
27 Hydrocephalus.....	Hydrocéphalie.....	21	26	47	2		45
28 Other Constitutional Diseases.....	Autres mal. constitutionnelles.....	7	8	15	2	1	12
DEVELOPMENTAL.	D'ÂGES.						
29 Premature Birth.....	Naissance prématurée.....	31	33	64			64
30 Cyanosis.....	Cyanosis.....	2	3	5			5
31 Malformations.....	Difformités.....	7	3	10			10
32 At Birth.....	A la naissance.....	6	2	8			8
33 Child Birth.....	Accouchement.....		9	9	9		
34 Old Age.....	Veillesse.....	42	56	98	40	51	7
35 Other Developmental.....	Autres maladies d'âges.....						

TABLE I.

CITY OF TORONTO.

Continued.

DISEASES OR OTHER CAUSES OF DEATH. MALADIES OU AUTRES CAUSES DE DÉCÈS.		SEXES.			CIVIL CONDITIONS. — ÉTATS CIVILS.		
		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Veu- vage.	Non- ma- riés.
LOCAL.	LOCALES.						
36 Cerebro Spinal Affections.	Affections cérébro-spinales.	70	60	130	26	3	101
37 Apoplexy.	Apoplexie.	23	17	40	22	6	12
38 Paralysis.	Paralyse.	34	17	51	30	11	10
39 Insanity.	Folie.	2	3	5	1	1	3
40 Epilepsy and Convulsions.	Epilepsie et convulsions.	67	60	127	4	.....	123
41 Heart and Blood Vessels Diseases.	Maladies du cœur et des vais- seaux sanguins.	93	95	188	94	33	61
42 Lung diseases.	Affections pulmonaires.	170	166	336	94	30	212
43 Quinsy.	Angine.	3	2	5	.....	1	4
44 Throat Affections.	Affections de la gorge.	45	26	71	.....	1	70
45 Stomach diseases.	Maladies de l'estomac.	17	21	38	11	1	26
46 Enteritis and other Affections of the Bowels.	Entérites et autres maladies d'intestins.	42	45	87	20	7	60
47 Peritonitis.	Péritonite.	17	27	44	21	3	20
48 Liver diseases.	Maladies du foie.	15	8	23	13	4	6
49 Spleen diseases.	Maladies de la rate. ....	.....	.....	.....	.....	.....	.....
50 Dentition.	Dentition. ....	.....	5	5	.....	.....	5
51 Diseases of the Urinary organs.	Maladies des voies urinaires.	44	38	82	47	9	26
52 Diseases of the Uterus.	Maladies de l'utérus. ....	.....	3	3	2	1	.....
53 Carbuncle.	Anthrax. ....	.....	.....	.....	.....	.....	.....
54 Synovitis.	Synovitis. ....	.....	.....	.....	.....	.....	.....
55 Joint diseases.	Maladies des articulations.	1	.....	1	.....	.....	1
56 Skin diseases.	Maladies de la peau.	4	.....	4	4	.....	.....
57 Other local diseases.	Autres affections locales. ....	.....	3	3	1	.....	2
VIOLENT.	VIOLENTES.						
58 Fractures and contusions.	Fractures et contusions.	10	5	15	5	.....	10
59 Gunshot and wounds.	Blessures et armes à feu.	4	2	6	5	.....	1
60 Burns and Scalds.	Brûlures.	3	8	11	4	1	6
61 Poison.	Empoisonnements.	6	2	8	3	.....	5
62 Drowning.	Noyades.	19	2	21	7	1	13
63 Suffocation.	Suffocation.	3	7	10	1	.....	9
64 Railway accidents.	Accidents par les ch. de fer.	10	.....	10	3	1	6
65 Other accidents.	Autres accidents.	5	3	8	3	1	4
66 Infanticide.	Infanticide. ....	.....	.....	.....	.....	.....	.....
67 Suicide.	Suicide.	4	.....	4	2	1	1
68 Homicide.	Homicide. ....	.....	1	1	1	.....	.....
69 Hanged (Judicial).	Exécutions de haute justice. ....	.....	.....	.....	.....	.....	.....
ILL-DEFINED AND NOT SPECIFIED CAUSES.	CAUSES INDÉFINIES ET NON SPÉCIFIÉES.						
70 Dropsy.	Hydropisie.	9	6	15	3	3	9
71 Abscess.	Abcès.	3	3	6	2	.....	4
72 Hemorrhage.	Hémorrhagie.	2	3	5	.....	.....	5
73 Atrophy and Debility.	Atrophie et débilité.	104	116	220	15	14	191
74 Sudden (Unascertained).	Subite—causes inconnues. ....	.....	.....	.....	.....	.....	.....
75 Not specified and ill-defined.	Non spécifiées et indéfinies.	11	16	27	9	2	16
Totals.	Totaux.	1,430	1,400	2,830	748	220	1,862

TABLE I.

CITY OF QUEBEC.

DISEASES OR OTHER CAUSES OF DEATH.			SEXES.			CIVIL CONDITIONS. — ÉTATS CIVILS.		
MALADIES OU AUTRES CAUSES DE DÉCÈS.			Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
			—	—	—	—	—	—
			Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Veu- vage.	Non- ma- riés.
ZYMOTIC.			ZYMOTIQUES.					
1	Small-Pox.....	Variole.....	1	2	3			3
2	Measles.....	Rougeole.....	34	24	58		1	57
3	Scarlet Fever.....	Fièvre scarlatine.....	3	6	9			9
4	Diphtheria.....	Diphthérie.....	184	217	401	1		400
5	Catarrhal Affections.....	Affections catharrales.....	17	7	24	3		21
6	Typhus, Enteric or Typhoid and continued fevers.....	Typhus, fièvres typhoïdes et fièvres continues.....	8	11	19	2		17
7	Whooping Cough.....	Coqueluche.....	10	3	13			13
8	Diarrhoeal Affections.....	Diarrhées.....	101	108	209		2	207
9	Remittent Fever.....	Fièvre remittente.....						
10	Other Malarial Diseases.....	Malaria.....						
11	Syphilis.....	Syphilis.....	6	6	12	1		11
12	Erysipelas.....	Erysipèle.....	1		1	1		
13	Puerperal Fever.....	Fièvres puerpérales.....		10	10	9	1	
14	Septicæmia.....	Septicémie.....	1	1	2	2		
15	Other Zymotic Diseases.....	Autres maladies zymotiques.....	2	3	5			5
PARASITIC.			PARASITIQUES.					
16	Thrush.....	Aphthes.....						
17	Worms and other Parasites...	Vers et autres parasites.....	1		1			1
DIETIC.			DIÉTITIQUES.					
18	Privation of Food.....	Défaut d'alimentation.....		1	1			1
19	Scurvy.....	Scorbut.....		1	1			1
20	Alcoholism.....	Ivrognerie.....	1		1	1		
CONSTITUTIONAL.			CONSTITUTIONNELLES.					
21	Rheumatism.....	Rhumatisme.....	4	4	8	5	2	1
22	Purpura.....	Purpura.....						
23	Anæmia.....	Anémie.....	30	21	51	1		50
24	Cancer.....	Cancer.....	5	17	22	14	1	7
25	Scrofula and other forms of Tuberculosis.....	Scrofules et autres formes de Tubercule.....	7	4	11	1		10
26	Phthisis.....	Phthisie.....	69	90	159	63	1	95
27	Hydrocephalus.....	Hydrocéphalie.....		1	1			1
28	Other Constitutional Diseases.	Autres mal. constitutionnelles.....		1	1	1		
DEVELOPMENTAL.			D'ÂGES.					
29	Premature Birth.....	Naissance prématurée.....	5	4	9			9
30	Cyanosis.....	Cyanosis.....						
31	Malformations.....	Difformités.....						
32	At Birth.....	A la naissance.....	66	21	87			87
33	Child Birth.....	Accouchement.....		7	7	7		
34	Old Age.....	Vieillesse.....	44	77	121	70	39	12
35	Other Developmental.....	Autres maladies d'âges.....						

TABLE I.

CITY OF QUEBEC.

Continued.

DISEASES OR OTHER CAUSES OF DEATH. MALADIES OU AUTRES CAUSES DE DÉCÈS.		SEXES.			CIVIL CONDITIONS. ÉTATS CIVILS.		
		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Veu- vage.	Non- ma- riés.
LOCAL.	LOCALES.						
36 Cerebro Spinal Affections	Affections cérébro-spinales	173	160	333	14	4	315
37 Apoplexy	Apoplexie	3	2	5	3	2	. . . .
38 Paralysis	Paralyse	31	29	60	37	12	11
39 Insanity	Folie . . . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .
40 Epilepsy and Convulsions	Epilepsie et convulsions	19	28	47	6	. . . .	41
41 Heart and Blood Vessels Disea- ses	Maladies du cœur et des vais- seaux sanguins	47	37	84	38	15	31
42 Lung diseases	Affections pulmonaires	102	118	220	62	17	141
43 Quinsy	Angine	4	3	7	. . . .	. . . .	7
44 Throat Affections	Affections de la gorge	10	10	20	2	. . . .	18
45 Stomach diseases	Maladies de l'estomac	16	2	18	4	. . . .	14
46 Enteritis and other Affections of the Bowels	Entérites et autres maladies d'intestins	26	25	51	10	5	36
47 Peritonitis	Péritonite	2	1	3	. . . .	. . . .	3
48 Liver diseases	Maladies du foie	10	6	16	13	1	2
49 Spleen diseases	Maladies de la rate . . . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .
50 Dentition	Dentition	53	44	97	. . . .	. . . .	97
51 Diseases of the Urinary organs	Maladies des voies urinaires . .	7	4	11	6	2	3
52 Diseases of the Uterus	Maladies de l'utérus . . . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .
53 Carbuncle	Anthrax . . . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .
54 Synovitis	Synovitis . . . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .
55 Joint diseases	Maladies des articulations . . .	1	. . . .	1	. . . .	. . . .	1
56 Skin diseases	Maladies de la peau	2	3	5	. . . .	. . . .	5
57 Other local diseases	Autres affections locales . . . .	. . . .	1	1	. . . .	. . . .	1
VIOLENT.	VIOLENTES.						
58 Fractures and contusions	Fractures et contusions	2	1	3	2	1	. . . .
59 Gunshot and wounds	Blessures et armes à feu . . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .
60 Burns and Scalds	Brûlures	1	1	2	. . . .	. . . .	2
61 Poison	Empoisonnements . . . . .	. . . .	1	1	1	. . . .	. . . .
62 Drowning	Noyades	4	. . . .	4	1	. . . .	3
63 Suffocation	Suffocation	1	. . . .	1	1	. . . .	. . . .
64 Railway accidents	Accidents par les ch. de fer . . .	1	. . . .	1	1	. . . .	. . . .
65 Other accidents	Autres accidents	17	6	23	9	1	13
66 Infanticide	Infanticide . . . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .
67 Suicide	Suicide . . . . .	. . . .	1	1	1	. . . .	. . . .
68 Homicide	Homicide . . . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .
69 Hanged (Judicial)	Exécutions de haute justice . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .
ILL-DEFINED AND NOT SPECIFIED CAUSES.	CAUSES INDÉFINIES ET NON SPÉCIFIÉES.						
70 Dropsy	Hydropisie	6	12	18	. . . .	3	6
71 Abscess	Abcès	2	3	5	2	. . . .	3
72 Hemorrhage	Hémorrhagie	3	4	7	1	. . . .	6
73 Atrophy and Debility	Atrophie et débilité	142	144	286	16	3	267
74 Sudden (Unascertained)	Subite—causes inconnues . . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .
75 Not specified and ill-defined . . .	Non spécifiées et indéfinies . . .	7	9	16	9	. . . .	7
Totals	Totaux	1,292	1,302	2,594	430	113	2,051

TABLEAU I.		CITÉ DE QUÉBEC.																Suite.	
Still-Born. Morts nés.	AGES.																		Not given.
	Under 1 year.	1 to 2.	2 to 3.	3 to 4.	4 to 5.	Total under 5.	5 to 10.	10 to 15.	15 to 20.	20 to 25.	25 to 35.	35 to 45.	45 to 55.	55 to 65.	65 to 75.	75 and over.			
	Au-des-sous de 1 an.	1 à 2.	2 à 3.	3 à 4.	4 à 5.	Total au-des-sous de 5.	5 à 10.	10 à 15.	15 à 20.	20 à 25.	25 à 35.	35 à 45.	45 à 55.	55 à 65.	65 à 75.	75 et plus.			
	205	36	19	11	12	283	22	7	4		2	1	3	5	5	1			
	1				2	3	2			1		3	7	11	4	18			
	23	6	4	2	1	36	1		2	2	3		1		1	1			
	1					1	3	6		4	4	8	11	15	26	6			
	55	14	17	6	5	97	15	6	2	4	14	19	14	16	24	9			
	6				1	7													
	6	2	1	1		10	4	2	1	1	1	1							
	10	1		1	1	13					1		1		2	1			
	16	1	2		2	21	4	3	1	2		5	4	2	6	3			
	1		1			1				1		1							
												2	3	3	6	1			
	62	32	3			97													
							2				1	2		1	2	3			
	3	2				5	1												
		1				1													

TABLE I.

CITY OF HAMILTON.

		SEXES.			CIVIL CONDITIONS. ÉTATS CIVILS.		
DISEASES OR OTHER CAUSES OF DEATH. — MALADIES OU AUTRES CAUSES DE DÉCÈS.		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Veu- vage.	Non- ma- riés.
ZYMOTIC.	ZYMOTIQUES.						
1 Small-Pox	Variole		1	1			1
2 Measles	Rougeole						
3 Scarlet Fever	Fièvre scarlatine	1	2	3			3
4 Diphtheria	Diphthérie	3	7	10			10
5 Catarrhal Affections	Affections catharrales	3	9	12	6	3	3
6 Typhus, Enteric or Typhoid and continued fevers	Typhus, fièvres typhoïdes et fièvres continues	3	7	10	5	1	4
7 Whooping Cough	Coqueluche	3	3	6			6
8 Diarrhœal Affections	Diarrhées	25	19	44			44
9 Remittent Fever	Fièvre remittente	1		1	1		
10 Other Malarial Diseases	Malaria	1	1	2	1		1
11 Syphilis	Syphilis						
12 Erysipelas	Erysipèle	2	2	4	2		2
13 Puerperal Fever	Fièvres puerpérales						
14 Septicæmia	Septicémie	2	1	3	2	1	
15 Other Zymotic Diseases	Autres maladies zymotiques						
PARASITIC.	PARASITIQUES.						
16 Thrush	Aphthes		1	1			1
17 Worms and other Parasites	Vers et autres parasites						
DIETIC.	DIÉTIQUES.						
18 Privation of Food	Défaut d'alimentation						
19 Scurvy	Scorbut						
20 Alcoholism	Ivrognerie	2	1	3	3		
CONSTITUTIONAL.	CONSTITUTIONNELLES.						
21 Rheumatism	Rhumatisme	2		2	1		1
22 Purpura	Purpura	1		1			1
23 Anæmia	Anémie	2		2	1		1
24 Cancer	Cancer	18	13	31	19	12	
25 Scrofula and other forms of Tuberculosis	Scrofules et autres formes de Tubercule	6	4	10	5		5
26 Phthisis	Phthisie	30	35	65	35	4	26
27 Hydrocephalus	Hydrocéphalie	5	2	7			7
28 Other Constitutional Diseases	Autres mal. constitutionnelles	7	1	8	2	1	5
DEVELOPMENTAL.	D'ÂGES.						
29 Premature Birth	Naissance prématurée	16	14	30			30
30 Cyanosis	Cyanosis		1	1			1
31 Malformations	Difformités		1	1			1
32 At Birth	A la naissance	2		2			2
33 Child Birth	Accouchement		4	4	4		
34 Old Age	Vieillesse	10	13	23	6	15	2
35 Other Developmental	Autres maladies d'âges						

TABLEAU I.		CITÉ D'HAMILTON.																
Still-Born. — Morts-nés.	AGES.																	
	Un- der 1 year.	1 to 2.	2 to 3.	3 to 4.	4 to 5.	Total under 5.	5 to 10.	10 to 15.	15 to 20.	20 to 25.	25 to 35.	35 to 45.	45 to 55.	55 to 65.	65 to 75.	75 and over.	Not given.	
	Au- des- sous de 1 an.	1 à 2.	2 à 3.	3 à 4.	4 à 5.	Total au- des- sous de 5.	5 à 10.	10 à 15.	15 à 20.	20 à 25.	25 à 35.	35 à 45.	45 à 55.	55 à 65.	65 à 75.	75 et plus.	Non don- nés.	
			1 1	2		1 3												1 2 3
	1 1		4			5 1	3	2										4 5
	3	1	1	1		6	1			3	4			2				6 7
	33	10	1			44												8
									1		1							9 10
													1					11
	1					1					1				1	1		12 13 14 15
											1			2				
	1					1												16 17
																		18
												1	1	1				19 20
											1			1				21
	1 1					1 1								1				22 23 24
											1	3	6	8	11	2		
	2 1 6 4	1 1				3 1 7 5	2	1	6	1 10	1 16	1 13	1 11	3 5		1		25 26 27 28
	30 1 1 2					30 1 1 2								2	1			29 30 31 32 33 34 35
										1	1	2			2	21		

TABLE I.

CITY OF HAMILTON.

Continued.

		SEXES.			CIVIL CONDITIONS. — ÉTATS CIVILS.		
DISEASES OR OTHER CAUSES OF DEATH.		Males — Hom- mes.	Fe- males. — Fem- mes.	Totals — To- taux.	Mar- ried. — Ma- riés.	Wi- dowed — Veu- vage.	Single — Non- ma- riés.
MALADIES OU AUTRES CAUSES DE DÉCÈS.							
LOCAL.	LOCALES.						
36 Cerebro Spinal Affections ...	Affections cérébro-spinales...	31	21	52	14	2	36
37 Apoplexy.....	Apoplexie.....	7	2	9	6	3	
38 Paralysis.....	Paralysie.....	16	9	25	13	11	1
39 Insanity.....	Folie.....	4	3	7	4		3
40 Epilepsy and Convulsions.....	Epilepsie et convulsions.....	10	17	27	1	3	23
41 Heart and Blood Vessels Diseases.	Maladies du cœur et des vais- seaux sanguins	35	35	70	32	14	24
42 Lung diseases.....	Affections pulmonaires.....	69	52	121	41	22	58
43 Quinsy.....	Angine.....		1	1			1
44 Throat Affections.....	Affections de la gorge.....	4	5	9		1	8
45 Stomach diseases.....	Maladies de l'estomac.....	3	3	6	4	1	1
46 Enteritis and other Affections of the Bowels.....	Entérites et autres maladies d'intestins.....	5	25	30	9	5	16
47 Peritonitis.....	Péritonite.....	3	7	10	4	2	4
48 Liver diseases.....	Maladies du foie.....	5	1	6	1	4	1
49 Spleen diseases.....	Maladies de la rate.....						
50 Dentition.....	Dentition.....	1		1			1
51 Diseases of the Urinary organs	Maladies des voies urinaires	14	13	27	16	6	5
52 Diseases of the Uterus.....	Maladies de l'utérus.....		4	4	2		2
53 Carbuncle.....	Anthrax.....						
54 Synovitis.....	Synovitis.....						
55 Joint diseases.....	Maladies des articulations.....						
56 Skin diseases.....	Maladies de la peau.....						
57 Other local diseases...	Autres affections locales.....	1	1	2	1		1
VIOLENT.	VIOLENTES.						
58 Fractures and contusions.....	Fractures et contusions.....	1		1	1		
59 Gunshot and wounds.....	Blessures et armes à feu.....	1		1			1
60 Burns and Scalds.....	Brûlures.....	3	1	4	1		3
61 Poison.....	Empoisonnements.....		1	1		1	
62 Drowning.....	Noyades.....	5	2	7	1		6
63 Suffocation.....	Suffocation.....	2	1	3			3
64 Railway accidents.....	Accidents par les ch. de fer.....	2		2	2		
65 Other accidents.....	Autres accidents.....	8	1	9	6	2	1
66 Infanticide.....	Infanticide.....						
67 Suicide.....	Suicide.....	2	3	5	2	1	2
68 Homicide.....	Homicide.....						
69 Hanged (Judicial).....	Exécutions de haute justice.....						
ILL-DEFINED AND NOT SPECIFIED CAUSES.	CAUSES INDÉFINIES ET NON SPÉCIFIÉES.						
70 Dropsy.....	Hydropisie.....	3	4	7	1	3	3
71 Abscess.....	Abcès.....						
72 Hemorrhage.....	Hémorrhagie.....	1		1	1		
73 Atrophy and Debility.....	Atrophie et débilité.....	21	28	49	3	1	45
74 Sudden (Unascertained).....	Subite—causes inconnues.....						
75 Not specified and ill-defined..	Non spécifiées et indéfinies.....	4	6	*11	4	2	5
Totals.....	Totaux.....	406	388	795	263	121	411

*1, Sex not given.—1 Sexe non donné.

TABLE I.

CITY OF HALIFAX.

		SEXES.			CIVIL CONDITIONS. — ÉTATS CIVILS.		
DISEASES OR OTHER CAUSES OF DEATH. — MALADIES OU AUTRES CAUSES DE DÉCÈS.		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
		—	—	—	—	—	—
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Ve- u- vage.	Non- ma- riés.
ZYMOTIC.	ZYMOTIQUES.						
1 Small-Pox.....	Variole.....						1
2 Measles.....	Rougeole.....						
3 Scarlet Fever.....	Fièvre scarlatine.....	1	3	4			4
4 Diphtheria.....	Diphthérie.....	40	33	73			73
5 Catarrhal Affections.....	Affections catharrales.....	3	2	5	2		3
6 Typhus, Enteric or Typhoid and continued fevers.....	Typhus, fièvres typhoïdes et fièvres continues.....	3	5	8	4		4
7 Whooping Cough.....	Coqueluche.....	7	6	13			13
8 Diarrhœal Affections.....	Diarrhées.....	33	38	71	6	4	61
9 Remittent Fever.....	Fièvre remittente.....						
10 Other Malarial Diseases.....	Malaria.....						
11 Syphilis.....	Syphilis.....		1	1			1
12 Erysipelas.....	Erysipèle.....		1	1	1		
13 Puerperal Fever.....	Fièvres puerpérales.....		2	2	1		1
14 Septicæmia.....	Septicémie.....	2	1	3	1		2
15 Other Zymotic Diseases.....	Autres maladies zymotiques.....						
PARASITIC.	PARASITIQUES.						
16 Thrush.....	Aphthes.....						
17 Worms and other Parasites.....	Vers et autres parasites.....						
DIETIC.	DIÉTIQUES.						
18 Privation of Food.....	Défaut d'alimentation.....						
19 Scurvy.....	Scorbut.....						
20 Alcoholism.....	Ivrognerie.....	2		2		2	
CONSTITUTIONAL.	CONSTITUTIONNELLES.						
21 Rheumatism.....	Rhumatisme.....		1	1	1		
22 Purpura.....	Purpura.....		1	1			1
23 Anæmia.....	Anémie.....						
24 Cancer.....	Cancer.....	9	15	24	16	7	1
25 Scrofula and other forms of Tuberculosis.....	Scrofules et autres formes de Tubercule.....	1	2	3			3
26 Phthisis.....	Phthisie.....	48	57	105	38	7	60
27 Hydrocephalus.....	Hydrocéphalie.....	5	2	7			7
28 Other Constitutional Diseases.....	Autres mal. constitutionnelles.....		1	1			1
DEVELOPMENTAL.	D'ÂGES.						
29 Premature Birth.....	Naissance prématurée.....	2	2	4			4
30 Cyanosis.....	Cyanosis.....						
31 Malformations.....	Difformités.....						
32 At Birth.....	A la naissance.....	1	1	2			2
33 Child Birth.....	Accouchement.....		1	1			1
34 Old Age.....	Vieillesse.....	13	34	47	12	29	6
35 Other Developmental.....	Autres maladies d'âges.....						

TABLEAU I.																		CITÉ D'HALIFAX.																	
Still-Born. — Morts nés.	A G E S.																																		
	Un- der 1 year.	1 to 2.	2 to 3.	3 to 4.	4 to 5.	Total under 5.	5 to 10.	10 to 15.	15 to 20.	20 to 25.	25 to 35.	35 to 45.	45 to 55.	55 to 65.	65 to 75.	75 and over.	Not given.																		
	Au- des- sous de 1 an.	1 à 2.	2 à 3.	3 à 4.	4 à 5.	Total au- des- sous de 5.	5 à 10.	10 à 15.	15 à 20.	20 à 25.	25 à 35.	35 à 45.	45 à 55.	55 à 65.	65 à 75.	75 et plus.	Non don- nés.																		
			1	2		3		1																											
	3	5	5	13	9	35	27	6	1	2	2																								
	2					2				1			2																						
							1		2		2	1	1		1																				
	5	5	2	1		13																													
	52	5	2	1		60						1	1	3	3	3																			
	1					1																													
										1																									
	1					1				2		1																							
	</																																		

TABLE I.

CITY OF HALIFAX.

Continued.

DISEASES OR OTHER CAUSES OF DEATH. — MALADIES OU AUTRES CAUSES DE DÉCÈS.		SEXES.			CIVIL CONDITIONS. — ÉTATS CIVILS.		
		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Veu- vage.	Non- ma- riés.
LOCAL.	LOCALES.						
36 Cerebro Spinal Affections	Affections cérébro-spinales. . . .	32	28	60	11	3	46
37 Apoplexy	Apoplexie	10	8	18	10	2	6
38 Paralysis	Paralyse	8	4	12	5	5	2
39 Insanity	Folie	4	1	5	1	1	3
40 Epilepsy and Convulsions	Epilepsie et convulsions	38	35	73			73
41 Heart and Blood Vessels Disea- ses	Maladies du cœur et des vais- seaux sanguins	27	27	54	22	15	17
42 Lung diseases	Affections pulmonaires	49	49	98	20	18	60
43 Quinsy	Angine		1	1			1
44 Throat Affections	Affections de la gorge	15	8	23	1		22
45 Stomach diseases	Maladies de l'estomac	3	3	6	2	1	3
46 Enteritis and other Affections of the Bowels	Entérites et autres maladies d'intestins	6	7	13	3		10
47 Peritonitis	Péritonite	3	3	6	1		5
48 Liver diseases	Maladies du foie	5	1	6	3	2	1
49 Spleen diseases	Maladies de la rate						
50 Dentition	Dentition						
51 Diseases of the Urinary organs	Maladies des voies urinaires. .	17	10	27	14	7	6
52 Diseases of the Uterus	Maladies de l'uterus		1	1			1
53 Carbuncle	Anthrax						
54 Synovitis	Synovitis						
55 Joint diseases	Maladies des articulations. . .	1		1			1
56 Skin diseases	Maladies de la peau		2	2		1	1
57 Other local diseases	Autres affections locales	2	1	3			3
VIOLENT.	VIOLENTES.						
58 Fractures and contusions	Fractures et contusions	6	2	8	4		4
59 Gunshot and wounds	Blessures et armes à feu	1		1			1
60 Burns and Scalds	Brûlures	1	1	2			2
61 Poison	Empoisonnements	1		1	1		
62 Drowning	Noyades	7	1	8	1	1	6
63 Suffocation	Suffocation	4	1	5		1	4
64 Railway accidents	Accidents par les ch. de fer. . .	2	1	3	1		2
65 Other accidents	Autres accidents	5		5	4		1
66 Infanticide	Infanticide		1	1			1
67 Suicide	Suicide	1		1	1		
68 Homicide	Homicide						
69 Hanged (Judicial)	Exécutions de haute justice. . .						
ILL-DEFINED AND NOT SPECIFIED CAUSES.	CAUSES INDÉFINIES ET NON SPÉCIFIÉES.						
70 Dropsy	Hydropisie	1		1			1
71 Abscess	Abscès						
72 Hemorrhage	Hémorrhagie						
73 Atrophy and Debility	Atrophie et débilité	44	46	90	9	5	76
74 Sudden (Unascertained).	Subite—causes inconnues. . . .						
75 Not specified and ill-defined. . . .	Non spécifiées et indéfinies. . .	1	4	5	2	1	2
Totals	Totaux	464	455	919	198	112	609

TABLEAU I.		CITÉ D'HALIFAX.															<i>Suite.</i>	
Still-Born.	Morts nes.	A G E S.															75 and over.	Not given.
		Un-der 1 year.	1 to 2.	2 to 3.	3 to 4.	4 to 5.	Total under 5.	5 to 10.	10 to 15.	15 to 20.	20 to 25.	25 to 35.	35 to 45.	45 to 55.	55 to 65.	65 to 75.		
		Au-des-sous de 1 an.	1 à 2.	2 à 3.	3 à 4.	4 à 5.	Total au-des-sous de 5.	5 à 10.	10 à 15.	15 à 20.	20 à 25.	25 à 35.	35 à 45.	45 à 55.	55 à 65.	65 à 75.		
		20	8	4	1		33	6	1	2	3	3	1	5		3	3	36
		1					1				1	1	3	3	3	4	5	37
										1					1	2	5	38
		53	9	4	3		69	1	1		2					1	2	39
																		40
			1		1		2	4	2	1	1	6	9	8	3	12	6	41
		23	11	7	3	1	45	5				3	7	8	9	11	10	42
		1					1											43
		3	5	2	5	3	18	4					1					44
		2					2						1	2	1			45
		5	1				6	1		1				1	2		2	46
									2	1				1				47
												1	2	1		2		48
																		49
									1	1	1	2	2	5	4	9	2	50
																1		51
																		52
																		53
										1								54
															1		1	55
														2				56
															1			57
											1	1	1	3		2		58
										1								59
			1				1	1										60
														1				61
		1					1	1		3			2			1		62
		3					3					2						63
								1	1							1		64
								1				2	1	1				65
													1				1	66
																		67
																		68
																		69
			1				1											70
																		71
																		72
		62	5	1			68	2	1			1	2	2	5	4	5	73
																		74
												2	1			2		75
54	250	59	29	30	13	381	58	14	33	41	55	56	69	42	76	93	1	

TABLE I.

CITY OF OTTAWA.

DISEASES OR OTHER CAUSES OF DEATH. — MALADIES OU AUTRES CAUSES DE DÉCÈS.		SEXES.			CIVIL CONDITIONS. — ÉTATS CIVILS.		
		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Veu- vage.	Non- ma- riés.
ZYMOTIC.	ZYMOTIQUES.						
1 Small-Pox	Variole						
2 Measles	Rougeole	3	2	5			5
3 Scarlet Fever	Fièvre scarlatine	13	11	24			24
4 Diphtheria	Diphtérie	12	15	27	1		26
5 Catarrhal Affections	Affections catharrales	2	1	3	1		2
6 Typhus, Enteric or Typhoid and continued fevers...	Typhus, fièvres typhoides et fièvres continues	6	3	9	1		8
7 Whooping Cough	Coqueluche	6	4	10			10
8 Diarrhœal Affections.....	Diarrhées	82	77	159	1	3	155
9 Remittent Fever.....	Fièvre remittente.....						
10 Other Malarial Diseases	Malaria						
11 Syphilis.....	Syphilis.....						
12 Erysipelas	Erysipèle.....						
13 Puerperal Fever	Fièvres puerpérales.....		1	1	1		
14 Septicæmia.....	Septicémie	2		2			2
15 Other Zymotic Diseases	Autres maladies zymotiques.....						
PARASITIC.	PARASITIQUES.						
16 Thrush	Aphthes.....	1		1			1
17 Worms and other Parasites...	Vers et autres parasites.....						
DIETIC.	DIÉTITIQUES.						
18 Privation of Food	Défaut d'alimentation.....						
19 Scurvy	Scorbut.....						
20 Alcoholism	Ivrognerie.....	2	1	3	2		1
CONSTITUTIONAL.	CONSTITUTIONNELLES.						
21 Rheumatism	Rhumatisme.....		3	3	2	1	
22 Purpura	Purpura						
23 Anæmia.....	Anémie.....	1	5	6	1		5
24 Cancer	Cancer.....	6	11	17	13	2	2
25 Scrofula and other forms of Tuberculosis.....	Scrofules et autres formes de Tubercule.....	10	4	14			14
26 Phthisis	Phthisie	45	57	102	51	2	49
27 Hydrocephalus.....	Hydrocéphalie.....	2	3	5			5
28 Other Constitutional Diseases.	Autres mal. constitutionnelles.	1	2	3			3
DEVELOPMENTAL.	D'ÂGES.						
29 Premature Birth.....	Naissance prématurée.....	24	10	34			34
30 Cyanosis.....	Cyanosis.....	7	7	14			14
31 Malformations.....	Difformités.....	2		2			2
32 At Birth	A la naissance.....	3	1	4			4
33 Child Birth.....	Accouchement.....		9	9	8		1
34 Old Age	Vieillesse.....	16	11	27	18	7	2
35 Other Developmental	Autres maladies d'âges.....						

TABLE I.

CITY OF OTTAWA.

Continued.

DISEASES OR OTHER CAUSES OF DEATH. MALADIES OU AUTRES CAUSES DE DÉCÈS.		SEXES.			CIVIL CONDITIONS. ÉTATS CIVILS.		
		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
		—	—	—	—	—	—
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Ve- u- vage.	Non- ma- riés.
LOCAL.	LOCALES.						
36 Cerebro Spinal Affections . . .	Affections cérébro-spinales . .	18	14	32	6	2	24
37 Apoplexy	Apoplexie	1	3	4	2		2
38 Paralysis	Paralysie	8	14	22	16	4	2
39 Insanity	Folie		1	1	1		
40 Epilepsy and Convulsions . . .	Epilepsie et convulsions . . .	8	7	15			15
41 Heart and Blood Vessels Disea- ses	Maladies du cœur et des vais- seaux sanguins	24	16	40	22	2	16
42 Lung diseases	Affections pulmonaires . . .	35	32	67	22	3	42
43 Quinsy	Angine						
44 Throat Affections	Affections de la gorge	4	7	11			11
45 Stomach diseases	Maladies de l'estomac	3	8	11	2		9
46 Enteritis and other Affections of the Bowels	Entérites et autres maladies d'intestins	19	8	27	7		20
47 Peritonitis	Péritonite	1	3	4		1	3
48 Liver diseases	Maladies du foie	15	7	22	1		21
49 Spleen diseases	Maladies de la rate						
50 Dentition	Dentition	38	34	72			72
51 Diseases of the Urinary organs	Maladies des voies urinaires .	7	5	12	4		8
52 Diseases of the Uterus	Maladies de l'utérus		1	1	1		
53 Carbuncle	Anthrax						
54 Synovitis	Synovitis						
55 Joint diseases	Maladies des articulations . .						
56 Skin diseases	Maladies de la peau						
57 Other local diseases	Autres affections locales . . .						
VIOLENT.	VIOLENTES.						
58 Fractures and contusions . . .	Fractures et contusions . . .	2	1	3	2		1
59 Gunshot and wounds	Blessures et armes à feu . . .						
60 Burns and Scalds	Brûlures						
61 Poison	Empoisonnements		1	1	1		
62 Drowning	Noyades	7	1	8	1	1	6
63 Suffocation	Suffocation	4		4			4
64 Railway accidents	Accidents par les ch. de fer . .	3		3			3
65 Other accidents	Autres accidents	2		2			2
66 Infanticide	Infanticide						
67 Suicide	Suicide						
68 Homicide	Homicide						
69 Hanged (Judicial)	Exécutions de haute justice . .						
ILL-DEFINED AND NOT SPECIFIED CAUSES.	CAUSES INDÉFINIES ET NON SPÉCIFIÉES.						
70 Dropsy	Hydropisie	6	5	11	5	1	5
71 Abscess	Absès	5	5	10	4		6
72 Hemorrhage	Hémorrhagie	4	2	6	3		3
73 Atrophy and Debility	Atrophie et débilité	40	23	63	8	5	50
74 Sudden (Unascertained)	Subite—causes inconnues . . .	1	1	2	2		
75 Not specified and ill-defined . .	Non spécifiées et indéfinies . .	3	2	5	1		4
Totals	Totaux	504	439	943	211	34	698

TABLE I.

CITY OF ST. JOHN, N.B.

		SEXES.			CIVIL CONDITIONS. — ÉTATS CIVILS.		
DISEASES OR OTHER CAUSES OF DEATH.		Males	Fe- males	Totals	Mar- ried.	Wi- dowed	Single
MALADIES OU AUTRES CAUSES DE DÉCÈS.		—	—	—	—	—	—
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Veu- vage.	Non- ma- riés.
ZYMOTIC.		ZYMOTIQUES.					
Small-Pox.....	Variole.....						
Measles.....	Rougeole.....	15	12	27			27
Scarlet Fever.....	Fièvre scarlatine.....	1	2	3			3
Diphtheria.....	Diphthérie.....	6	12	18			18
Catarrhal Affections.....	Affections catharrales.....	2	4	6	4		2
Typhus, Enteric or Typhoid and continued fevers.....	Typhus, fièvres typhoïdes et fièvres continues.....	5	5	10	4		6
Whooping Cough.....	Coqueluche.....	14	10	24			24
Diarrhoeal Affections.....	Diarrhées.....	27	22	49			49
Remittent Fever.....	Fièvre remittente.....						
Other Malarial Diseases.....	Malaria.....						
Syphilis.....	Syphilis.....						
Erysipelas.....	Erysipèle.....						
Puerperal Fever.....	Fièvres puerpérales.....		1	1	1		
Septicæmia.....	Septicémie.....		2	2	2		
Other Zymotic Diseases.....	Autres maladies zymotiques.....						
PARASITIC.		PARASITIQUES					
Thrush.....	Aphthes.....						
Worms and other Parasites..	Vers et autres parasites.....						
DIETIC.		DIÉTIQUES.					
Privation of Food.....	Défaut d'alimentation.....						
Scurvy.....	Scorbut.....						
Alcoholism.....	Ivrognerie.....	1		1	1		
CONSTITUTIONAL.		CONSTITUTIONNELLES.					
Rheumatism.....	Rhumatisme.....	1	1	2		1	1
Purpura.....	Purpura.....						
Anæmia.....	Anémie.....						
Cancer.....	Cancer.....	4	3	7	7		
Scrofula and other forms of Tuberculosis.....	Scrofules et autres formes de Tubercule.....	2	1	3			3
Phthisis.....	Phthisie.....	58	70	128	55	1	72
Hydrocephalus.....	Hydrocéphalie.....	5	2	7			7
Other Constitutional Diseases.	Autres mal. constitutionnelles.	1		1			1
DEVELOPMENTAL.		D'ÂGES.					
Premature Birth.....	Naissance prématurée.....	2		2			2
Cyanosis.....	Cyanosis.....						
Malformations.....	Difformités.....		1	1			1
At Birth.....	A la naissance.....						
Child Birth.....	Accouchement.....		6	6	5		1
Old Age.....	Vieillesse.....	21	19	40	22	16	2
Other Developmental.....	Autres maladies d'âges.....						

TABLE I.

CITY OF ST. JOHN, N.B.

Continued.

		SEXES.			CIVIL CONDITIONS. ÉTATS CIVILS.		
DISEASES OR OTHER CAUSES OF DEATH. MALADIES OU AUTRES CAUSES DE DÉCÈS.		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
		—	—	—	—	—	—
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Veu- vage.	Non- ma- riés.
LOCAL.	LOCALES.						
36 Cerebro Spinal Affections . . .	Affections cérébro-spinales . . .	17	20	37	9		28
37 Apoplexy	Apoplexie	3	3	6	6		
38 Paralysis	Paralyse	13	10	23	15	5	3
39 Insanity	Folie	2	1	3	1		2
40 Epilepsy and Convulsions . . .	Epilepsie et convulsions . . .	24	22	46			46
41 Heart and Blood Vessels Disea- ses	Maladies du cœur et des vais- seaux sanguins	28	19	47	31	5	11
42 Lung diseases	Affections pulmonaires . . .	60	58	118	57	4	57
43 Quinsy	Angine						
44 Throat Affections	Affections de la gorge	22	13	35			35
45 Stomach diseases	Maladies de l'estomac	4	1	5	4		1
46 Enteritis and other Affections of the Bowels	Entérites et autres maladies d'intestins	6	8	14	4		10
47 Peritonitis	Péritonite						
48 Liver diseases	Maladies du foie	2	2	4	2	1	1
49 Spleen diseases	Maladies de la rate						
50 Dentition	Dentition		2	2			2
51 Diseases of the Urinary organs	Maladies des voies urinaires . .	10	2	12	8	3	1
52 Diseases of the Uterus	Maladies de l'utérus		1	1	1		
53 Carbuncle	Anthrax						
54 Synovitis	Synovitis						
55 Joint diseases	Maladies des articulations . .						
56 Skin diseases	Maladies de la peau						
57 Other local diseases	Autres affections locales . . .	1		1	1		
VIOLENT.	VIOLENTES.						
58 Fractures and contusions . . .	Fractures et contusions	1	3	4	2	2	
59 Gunshot and wounds	Blessures et armes à feu . . .	2		2	1		1
60 Burns and Scalds	Brûlures		1	1	1		
61 Poison	Empoisonnements		1	1			1
62 Drowning	Noyades	2	3	5	1		4
63 Suffocation	Suffocation						
64 Railway accidents	Accidents par les ch. de fer . .	1		1			1
65 Other accidents	Autres accidents	6		6	2		4
66 Infanticide	Infanticide						
67 Suicide	Suicide	1		1	1		
68 Homicide	Homicide						
69 Hanged (Judicial)	Exécutions de haute justice . .						
ILL-DEFINED AND NOT SPECIFIED CAUSES.	CAUSES INDÉFINIES ET NON SPÉCIFIÉES.						
70 Dropsy	Hydropisie	4	7	11	8	1	2
71 Abscess	Abcès	1		1			1
72 Hemorrhage	Hémorrhagie						
73 Atrophy and Debility	Atrophie et débilité	26	21	47	24	6	17
74 Sudden (Unascertained)	Subite—causes inconnues . . .						
75 Not specified and ill-defined . .	Non spécifiées et indéfinies . .	2		2	1		1
Totals	Totaux	403	371	774	281	45	448

TABLE I.

CITY OF LONDON.

DISEASES OR OTHER CAUSES OF DEATH. — MALADIES OU AUTRES CAUSES DE DÉCÈS.		SEXES.			CIVIL CONDITIONS. — ÉTATS CIVILS.		
		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Ve- u- vage.	Non- ma- riés.
ZYMOTIC.	ZYMOTIQUES.						
1 Small-Pox	Variole						
2 Measles	Rougeole						
3 Scarlet Fever	Fièvre scarlatine	4	2	6			6
4 Diphtheria	Diphthérie	6	4	10			10
5 Catarrhal Affections	Affections catharrales	4	2	6	4		2
6 Typhus, Enteric or Typhoid and continued fevers	Typhus, fièvres typhoïdes et fièvres continues	3	5	8	5		3
7 Whooping Cough	Coqueluche						
8 Diarrhœal Affections	Diarrhées	12	5	17			17
9 Remittent Fever	Fièvre remittente						
10 Other Malarial Diseases	Malaria						
11 Syphilis	Syphilis						
12 Erysipelas	Erysipèle	1		1			1
13 Puerperal Fever	Fièvres puerpérales						
14 Septicæmia	Septicémie	1	1	2	1		1
15 Other Zymotic Diseases	Autres maladies zymotiques						
PARASITIC.	PARASITIQUES						
16 Thrush	Aphthes						
17 Worms and other Parasites	Vers et autres parasites	1		1			1
DIETIC.	DIÉTIQUES.						
18 Privation of Food	Défaut d'alimentation						
19 Scurvy	Scorbut						
20 Alcoholism	Ivrognerie						
CONSTITUTIONAL.	CONSTITUTIONNELLES.						
21 Rheumatism	Rhumatisme						
22 Purpura	Purpura						
23 Anæmia	Anémie	1		1			1
24 Cancer	Cancer	5	4	9	6	2	1
25 Scrofula and other forms of Tuberculosis	Scrofules et autres formes de Tubercule	2		2	1		1
26 Phthisis	Phthisie	21	29	50	20	1	29
27 Hydrocephalus	Hydrocéphalie						
28 Other Constitutional Diseases	Autres mal. constitutionnelles	1	1	2			2
DEVELOPMENTAL.	D'ÂGES.						
29 Premature Birth	Naissance prématurée						
30 Cyanosis	Cyanosis						
31 Malformations	Difformités						
32 At Birth	A la naissance						
33 Child Birth	Accouchement		2	2	1		1
34 Old Age	Vieillesse	9	15	24	12	12	
35 Other Developmental	Autres maladies d'âges						

TABLE I.

CITY OF LONDON.

Continued.

		SEXES.			CIVIL CONDITIONS. — ÉTATS CIVILS.			
DISEASES OR OTHER CAUSES OF DEATH.		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single	
MALADIES OU AUTRES CAUSES DE DÉCÈS.								
		—	—	—	—	—	—	
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Veu- vage.	Non- ma- riés.	
LOCAL.		LOCALES.						
36	Cerebro Spinal Affections.....	Affections cérébro-spinales....	9	8	17	4	2	11
37	Apoplexy	Apoplexie.....	5	7	12	7	4	1
38	Paralysis	Paralysie.....	10	6	16	14		2
39	Insanity	Folie.....						
40	Epilepsy and Convulsions	Épilepsie et convulsions.....	7	9	16			16
41	Heart and Blood Vessels Disea- ses.....	Maladies du cœur et des vais- seaux sanguins	9	13	22	14	2	6
42	Lung diseases	Affections pulmonaires	14	24	38	10	7	21
43	Quinsy	Angine.....						
44	Throat Affections.....	Affections de la gorge.....	2	4	6	1		5
45	Stomach diseases.....	Maladies de l'estomac.....	3	2	5	1		4
46	Enteritis and other Affections of the Bowels.....	Entérites et autres maladies d'intestins.....	5	8	13	7		6
47	Peritonitis.....	Péritonite.....	1		1	1		
48	Liver diseases.....	Maladies du foie.....	1		1	1		
49	Spleen diseases.....	Maladies de la rate.....	1		1	1		
50	Dentition.....	Dentition.....						
51	Diseases of the Urinary organs	Maladies des voies Urinaires.	14	4	18	13	2	3
52	Diseases of the Uterus.....	Maladies de l'utérus.....						
53	Carbuncle.....	Anthrax.....						
54	Synovitis.....	Synovitis.....						
55	Joint diseases.....	Maladies des articulations.....						
56	Skin diseases.....	Maladies de la peau.....	2		2			2
57	Other local diseases.....	Autres affections locales.....						
VIOLENT.		VIOLENTES.						
58	Fractures and contusions.....	Fractures et contusions.....	1		1			1
59	Gunshot and wounds.....	Blessures et armes à feu.....						
60	Burns and Scalds.....	Brûlures.....						
61	Poison.....	Empoisonnements.....	1		1			1
62	Drowning.....	Noyades.....	5		5	1		4
63	Suffocation.....	Suffocation.....						
64	Railway accidents.....	Accidents par les ch. de fer.....	1	1	2	1		1
65	Other accidents.....	Autres accidents.....	4	1	5	4		1
66	Infanticide.....	Infanticide.....						
67	Suicide.....	Suicide.....	1		1	1		
68	Homicide.....	Homicide.....						
69	Hanged (Judicial).....	Exécutions de haute justice.....						
ILL-DEFINED AND NOT SPECIFIED CAUSES.		CAUSES INDÉFINIES ET NON SPÉCIFIÉES.						
70	Dropsy.....	Hydropisie.....	3	5	8	5		3
71	Abscess.....	Abcès.....		1	1			1
72	Hæmorrhage.....	Hémorrhagie.....						
73	Atrophy and Debility.....	Atrophie et débilité.....	9	7	16	1		15
74	Sudden (Unascertained).....	Subite— causes inconnues.....						
75	Not specified and ill-defined..	Non spécifiées et indéfinies..	1	3	4	4		
Totals.....		Totaux.....	180	173	353	141	32	180

TABLEAU I.		CITÉ DE LONDON.														Suite.	
		AGES.															
Still-Born.	Under 1 year.	1 to 2.	2 to 3.	3 to 4.	4 to 5.	Total under 5.	5 to 10.	10 to 15.	15 to 20.	20 to 25.	25 to 35.	35 to 45.	45 to 55.	55 to 65.	65 to 75.	75 and over.	Not given.
Morts nés.	Au-dessous de 1 an.	1 à 2.	2 à 3.	3 à 4.	4 à 5.	Total au-dessous de 5.	5 à 10.	10 à 15.	15 à 20.	20 à 25.	25 à 35.	35 à 45.	45 à 55.	55 à 65.	65 à 75.	75 et plus.	Non don- nés.
	4	2	1		1	8	2				1	1	3	2	5	2	
												3	1	3	7	2	
	13	2	1			16											
	1	1	1		1	1	1	1	1	1	2	2	1	3	6	4	
	9					12	1	1	3	3	1	3	2	3	3	6	
	1				1	2	1	2						1			
	1	2				3		1								1	
	1	1	1			3		2	1		3		2	1		1	
												1					
															1		
															1		
											2	3	2	3	6	2	
	1					1				1							
										1							
			</														

TABLE I.

CITY OF WINNIPEG.

DISEASES OR OTHER CAUSES OF DEATH. — MALADIES OU AUTRES CAUSES DE DÉCÈS.		SEXES.			CIVIL CONDITIONS. — ÉTATS CIVILS.		
		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Veuf- vage.	Non- ma- riés.
ZYMOTIC.	ZYMOTIQUES.						
1 Small-Pox	Variole						
2 Measles	Rougeole	1		1			1
3 Scarlet Fever	Fièvre scarlatine	3	2	5			5
4 Diphtheria	Diphthérie	3	3	6			6
5 Catarrhal Affections	Affections catharrales	4	1	5	1	1	3
6 Typhus, Enteric or Typhoid and continued fevers	Typhus, fièvres Typhoides et fièvres continues	14	5	19	5		14
7 Whooping Cough	Coqueluche						
8 Diarrhœal Affections	Diarrhées	37	32	69			69
9 Remittent Fever	Fièvre remittente						
10 Other Malarial Diseases	Malaria						
11 Syphilis	Syphilis						
12 Erysipelas	Erysipèle	2		2			2
13 Puerperal Fever	Fièvres puerpérales		1	1	1		
14 Septicæmia	Septicémie	2	1	3	1		2
15 Other Zymotic Diseases	Autres maladies zymotiques						
PARASITIC.	PARASITIQUES.						
16 Thrush	Aphthes						
17 Worms and other Parasites	Vers et autres parasites						
DIETIC.	DIÉTIQUES.						
18 Privation of Food	Défaut d'alimentation						
19 Scurvy	Scorbut						
20 Alcoholism	Ivrognerie	1	1	2	1		1
CONSTITUTIONAL.	CONSTITUTIONNELLES.						
21 Rheumatism	Rhumatisme	1		1	1		
22 Purpura	Purpura						
23 Anæmia	Anémie						
24 Cancer	Cancer	4	4	8	7		1
25 Scrofula and other forms of Tuberculosis	Scrofules et autres formes de Tubercule	2	2	4	1		3
26 Phthisis	Phthisie	21	18	39	16	3	20
27 Hydrocephalus	Hydrocéphalie	2	1	3			3
28 Other Constitutional Diseases	Autres mal. constitutionnelles	2	4	6	1		5
DEVELOPMENTAL.	D'ÂGES.						
29 Premature Birth	Naissance prématurée	6	3	9			9
30 Cyanosis	Cyanosis		1	1			1
31 Malformations	Diffornités						
32 At Birth	À la naissance						
33 Child Birth	Accouchement		2	2	2		
34 Old Age	Vieillesse	3	1	4	2	2	
35 Other Developmental	Autres maladies d'âges						

TABLEAU I. CITÉ DE WINNIPEG.																	
Still-Born.	AGES.																
	Un-der 1 year.	1 to 2.	2 to 3.	3 to 4.	4 to 5.	Total under 5.	5 to 10.	10 to 15.	15 to 20.	20 to 25.	25 to 35.	35 to 45.	45 to 55.	55 to 65.	65 to 75.	75 and over.	Not given.
	Morts nés.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Au-des-sous de 1 an.	1 à 2.	2 à 3.	3 à 4.	4 à 5.	Total au-des-sous de 5.	5 à 10.	10 à 15.	15 à 20.	20 à 25.	25 à 35.	35 à 45.	45 à 55.	55 à 65.	65 à 75.	75 et plus.	Non don-nés.
		1				1											1
		1			1	2	1										2
			1	1	3	5	1										3
	1		1			2	1					1			1		4
	1	1		1		3	4		4	3	2	2	1				5
																	6
																	7
	58	9	1			68		1									8
																	9
																	10
																	11
												2					12
										1	1						13
																	14
																	15
																	16
																	17
																	18
										1		1					19
																	20
														1			21
																	22
																	23
										1			4	3			24
	1		1			2		1			1						25
	4	3			1	8	1	1	3	6	12	3	3	2			26
	3					3											27
	1	3				4		1			1						28
																	29
	9					9											30
	1					1											31
																	32
											1	1					33
															1	3	34
																	35

TABLE I.

CITY OF WINNIPEG.

Continued.

DISEASES OR OTHER CAUSES OF DEATH. MALADIES OU AUTRES CAUSES DE DÉCÈS.		SEXES.			CIVIL CONDITIONS. — ÉTATS CIVILS.		
		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Ve- uage.	Non- ma- riés.
LOCAL.	LOCALES.						
36 Cerebro Spinal Affections.....	Affections cérébro-spinales...	6	7	13	1	1	11
37 Apoplexy.....	Apoplexie.....	4	4	4	3		1
38 Paralysis.....	Paralyse.....	1	2	3	3		
39 Insanity.....	Folie.....		1	1	1		
40 Epilepsy and Convulsions.....	Epilepsie et convulsions.....	7	4	11			11
41 Heart and Blood Vessels Diseases.....	Maladies du cœur et des vais- seaux sanguins.....	8	9	17	10	2	5
42 Lung diseases.....	Affections pulmonaires.....	18	14	32	8		24
43 Quinsy.....	Angine.....		1	1			1
44 Throat Affections.....	Affections de la gorge.....	4		4			4
45 Stomach diseases.....	Maladies de l'estomac.....						
46 Enteritis and other Affections of the Bowels.....	Entérites et autres maladies d'intestins.....	8	5	13	4		9
47 Peritonitis.....	Péritonite.....	3	3	6	2	1	3
48 Liver diseases.....	Maladies du foie.....	3	1	4	2		2
49 Spleen diseases.....	Maladies de la rate.....						
50 Dentition.....	Dentition.....		1	1			1
51 Diseases of the Urinary organs.....	Maladies des voies urinaires.....	13	6	19	10	3	6
52 Diseases of the Uterus.....	Maladies de l'utérus.....						
53 Carbuncle.....	Anthrax.....						
54 Synovitis.....	Synovitis.....						
55 Joint diseases.....	Maladies des articulations.....	1	2	3	1	1	1
56 Skin diseases.....	Maladies de la peau.....	1		1			1
57 Other local diseases.....	Autres affections locales.....		1	1	1		
VIOLENT.	VIOLENTES.						
58 Fractures and contusions.....	Fractures et contusions.....	1					
59 Gunshot and wounds.....	Blessures et armes à feu.....	1	3	4	2	1	1
60 Burns and Scalds.....	Brûlures.....	1		1			1
61 Poison.....	Empoisonnements.....	1		1			1
62 Drowning.....	Noyades.....	5	2	7		1	6
63 Suffocation.....	Suffocation.....						
64 Railway accidents.....	Accidents par les ch. de fer.....	2	1	3	2		1
65 Other accidents.....	Autres accidents.....	2		2	1		1
66 Infanticide.....	Infanticide.....						
67 Suicide.....	Suicide.....	1		1	1		
68 Homicide.....	Homicide.....						
69 Hanged (Judicial).....	Exécutions de haute justice.....						
ILL-DEFINED AND NOT SPECIFIED CAUSES.	CAUSES INDÉFINIES ET NON SPÉCIFIÉES.						
70 Dropsy.....	Hydropisie.....	1	1	2	1		1
71 Abscess.....	Abcès.....		1	1			1
72 Hemorrhage.....	Hémorrhagie.....						
73 Atrophy and Debility.....	Atrophie et débilité.....	14	14	28	2		26
74 Sudden (Unascertained).....	Subite—causes inconnues.....						
75 Not specified and ill-defined..	Non spécifiées et indéfinies.....		2	2	1		1
Totals.....	Totaux.....	213	163	376	95	16	265

TABLEAU I.										CITÉ DE WINNIPEG.										Suite.	
A G E S.																					
Still Born.	Under 1 year.	1 to 2.	2 to 3.	3 to 4.	4 to 5.	Total under 5.	5 to 10.	10 to 15.	15 to 20.	20 to 25.	25 to 35.	35 to 45.	45 to 55.	55 to 65.	65 to 75.	75 and over.	Not given.				
Morts nés.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—				
	Au-des-sous de 1 an.	1 à 2.	2 à 3.	3 à 4.	4 à 5.	Total au-des-sous de 5.	5 à 10.	10 à 15.	15 à 20.	20 à 25.	25 à 35.	35 à 45.	45 à 55.	55 à 65.	65 à 75.	75 et plus.	Non don-nés.				
	4		1	1	1	7	2	2				1	2	1	1						
											1	1	1		1						
	5	2	1		2	10				1											
	1					1	2		1		2	2	4	3		2					
	11	8				19			2		1	6	2	1	1						
	1		1		1	3	1														
	4	1			1	6				1	5		1								
	1					1			2			2	1								
	2					2						1			1						
	1			1		1			2	1	5	3		5		2					
						1															
	1	1				1					1				1						
						1									1						

TABLE I.

CITY OF KINGSTON.

DISEASES OR OTHER CAUSES OF DEATH. — MALADIES OU AUTRES CAUSES DE DÉCÈS.		SEXES.			CIVIL CONDITIONS. — ÉTATS CIVILS.		
		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
		—	—	—	—	—	—
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Veu- vage.	Non- ma- riés.
	ZYMOTIC.						
	ZYMOTIQUES.						
1	Small-Pox.....						
2	Measles.....						
3	Scarlet Fever.....	3		3			3
4	Diphtheria.....	3	8	11			11
5	Catarrhal Affections.....	2		2	1	1	
6	Typhus, Enteric or Typhoid and continued fevers.....	6	5	11	2		9
7	Whooping Cough.....						
8	Diarrhoeal Affections.....	9	5	14		1	13
9	Remittent Fever.....						
10	Other Malarial Diseases.....		1	1			1
11	Syphilis.....						
12	Erysipelas.....						
13	Puerperal Fever.....						
14	Septicæmia.....						
15	Other Zymotic Diseases.....						
	PARASITIC.						
	PARASITIQUES.						
16	Thrush.....						
17	Worms and other Parasites.....						
	DIETIC.						
	DIÉTIQUES.						
18	Privation of Food.....						
19	Scurvy.....						
20	Alcoholism.....						
	CONSTITUTIONAL.						
	CONSTITUTIONNELLES.						
21	Rheumatism.....	1		1			1
22	Purpura.....						
23	Anæmia.....						
24	Cancer.....	7	2	9	7		2
25	Scrofula and other forms of Tuberculosis.....						
26	Phthisis.....	23	21	44	19	2	23
27	Hydrocephalus.....						
28	Other Constitutional Diseases.....	1	1	2			2
	DEVELOPMENTAL.						
	D'ÂGES.						
29	Premature Birth.....						
30	Cyanosis.....						
31	Malformations.....						
32	At Birth.....						
33	Child Birth.....						
34	Old Age.....	13	17	30	9	13	8
35	Other Developmental.....						

TABLE I.

CITY OF KINGSTON.

Continued.

DISEASES OR OTHER CAUSES OF DEATH. — MALADIES OU AUTRES CAUSES DE DÉCÈS.		SEXES.			CIVIL CONDITIONS. — ÉTATS CIVILS.		
		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Veu- vage.	Non- ma- riés.
LOCAL.	LOCALES.						
36 Cerebro Spinal Affections.	Affections cérébro-spinales.	8	5	13	2	2	9
37 Apoplexy.	Apoplexie.	2	—	2	1	—	1
38 Paralysis.	Paralyse.	4	6	10	6	2	2
39 Insanity.	Folie.	—	1	1	—	—	1
40 Epilepsy and Convulsions.	Epilepsie et convulsions.	7	6	13	1	—	12
41 Heart and Blood Vessels Disea- ses.	Maladies du cœur et des vais- seaux sanguins.	14	8	22	16	3	3
42 Lung diseases.	Affections pulmonaires.	18	12	30	11	4	15
43 Quinsy.	Angine.	—	—	—	—	—	—
44 Throat Affections.	Affections de la gorge.	2	2	4	—	—	4
45 Stomach diseases.	Maladies de l'estomac.	2	1	3	1	—	2
46 Enteritis and other Affections of the Bowels.	Entérites et autres maladies d'intestins.	4	10	14	2	2	10
47 Peritonitis.	Péritonite.	—	—	—	—	—	—
48 Liver diseases.	Maladies du foie.	1	—	1	—	—	1
49 Spleen diseases.	Maladies de la rate.	—	—	—	—	—	—
50 Dentition.	Dentition.	—	2	2	—	—	2
51 Diseases of the Urinary organs	Maladies des voies urinaires.	4	5	9	4	4	1
52 Diseases of the Uterus.	Maladies de l'utérus.	—	—	—	—	—	—
53 Carbuncle.	Anthrax.	—	—	—	—	—	—
54 Synovitis.	Synovitis.	—	—	—	—	—	—
55 Joint diseases.	Maladies des articulations.	—	—	—	—	—	—
56 Skin diseases.	Maladies de la peau.	—	—	—	—	—	—
57 Other local diseases.	Autres affections locales.	—	—	—	—	—	—
VIOLENT.	VIOLENTES.						
58 Fractures and contusions.	Fractures et contusions.	1	—	1	—	—	1
59 Gunshot and wounds.	Blessures et armes à feu.	1	—	1	—	1	—
60 Burns and Scalds.	Brûlures.	—	—	—	—	—	—
61 Poison.	Empoisonnements.	—	—	—	—	—	—
62 Drowning.	Noyades.	3	—	3	—	—	3
63 Suffocation.	Suffocation.	1	—	1	—	1	—
64 Railway accidents.	Accidents par les ch. de fer.	1	—	1	—	—	1
65 Other accidents.	Autres accidents.	5	—	5	2	—	3
66 Infanticide.	Infanticide.	—	—	—	—	—	—
67 Suicide.	Suicide.	1	—	1	—	1	—
68 Homicide.	Homicide.	—	—	—	—	—	—
69 Hanged (Judicial).	Exécutions de haute justice.	—	—	—	—	—	—
ILL-DEFINED AND NOT SPECIFIED CAUSES.	CAUSES INDÉFINIES ET NON SPÉCIFIÉES.						
70 Dropsy.	Hydropisie.	—	3	3	2	1	—
71 Abscess.	Abcès.	1	1	2	—	—	2
72 Hemorrhage.	Hémorrhagie.	—	1	1	—	—	1
73 Atrophy and Debility.	Atrophie et débilité.	23	21	44	10	13	21
74 Sudden (Unascertained).	Subite—causes inconnues.	—	—	—	—	—	—
75 Not specified and ill-defined.	Non spécifiées et indéfinies.	2	1	3	1	1	1
Totals.	Totaux.	173	145	318	97	52	169

TABLEAU I.		CITÉ DE KINGSTON.															<i>Suite.</i>	
Still-Born.	Morts nés.	AGES.																
		Un-der 1 year.	1 to 2.	2 to 3.	3 to 4.	4 to 5.	Total under 5.	5 to 10.	10 to 15.	15 to 20.	20 to 25.	25 to 35.	35 to 45.	45 to 55.	55 to 65.	65 to 75.	75 and over.	Not given.
		Au-des-sous de 1 an.	1 à 2.	2 à 3.	3 à 4.	4 à 5.	Total au-des-sous de 5.	5 à 10.	10 à 15.	15 à 20.	20 à 25.	25 à 35.	35 à 45.	45 à 55.	55 à 65.	65 à 75.	75 et plus.	Non don-nés.
		4				1	5	1	2			1	1	1	1		1	36
													1	1	3	1	3	37
																		38
		8	2				10				1				1	1		39
																		40
		1					1	1			2	1	1	2	4	6	4	41
		2		1	3		6		2		4	2	2	4	6	3	1	42
		1	1		1	1	4											43
		2					2							1				44
																		45
		5		1			6		1	2		1		1	1	2		46
												1						47
																		48
																		49
			2				2											50
										1		2		1	3	2		51
																		52
																		53
																		54
																		55
																		56
																		57
									1									58
															1			59
																		60
								2		1								61
																1		62
											1							63
								2				1	1	1				64
																		65
																	1	66
																		67
																		68
																		69
									1						1	1	1	70
								1					1					71
		16	1				17	1	1						3	9	14	72
				1			1					1				1		73
																		74
																		75
10	52	11	5	6	3	77	15	11	10	18	26	19	20	30	43	47	2	

TABLE I.

CITY OF VICTORIA, B.C.

DISEASES OR OTHER CAUSES OF DEATH. — MALADIES OU AUTRES CAUSES DE DÉCÈS.		SEXES.			CIVIL CONDITIONS. — ÉTATS CIVILS.		
		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
		—	—	—	—	—	—
		Hom- mes.	Fem- mes.	To- taux.	Mar- riés.	Veu- vage.	Non- ma- riés.
ZYMOTIC.	ZYMOTIQUES.						
1 Small-Pox.....	Variole.....						
2 Measles.....	Rougeole.....	2	2	4			4
3 Scarlet Fever.....	Fièvre scarlatine.....						
4 Diphtheria.....	Diphthérie.....		1	1			1
5 Catarrhal Affections.....	Affections catharrales.....						
6 Typhus, Enteric or Typhoid and continued fevers.....	Typhus, fièvres typhoïdes et fièvres continues.....	11	2	13	1		12
7 Whooping Cough.....	Coqueluche.....	1	3	4			4
8 Diarrhoeal Affections.....	Diarrhées.....	16	8	24	2	1	21
9 Remittent Fever.....	Fièvre remittente.....						
10 Other Malarial Diseases.....	Malaria.....						
11 Syphilis.....	Syphilis.....	1		1			1
12 Erysipelas.....	Erysipèle.....						
13 Puerperal Fever.....	Fièvres puerpérales.....						
14 Septicæmia.....	Septicémie.....	3	2	5		1	4
15 Other Zymotic Diseases.....	Autres maladies zymotiques.....						
PARASITIC.	PARASITIQUES.						
16 Thrush.....	Aphthes.....						
17 Worms and other Parasites.....	Vers et autres parasites.....						
DIETIC.	DIÉTIQUES.						
18 Privation of Food.....	Défaut d'alimentation.....						
19 Scurvy.....	Scorbut.....						
20 Alcoholism.....	Ivrognerie.....	2	1	3	1		2
CONSTITUTIONAL.	CONSTITUTIONNELLES.						
21 Rheumatism.....	Rhumatisme.....	2	1	3			3
22 Purpura.....	Purpura.....						
23 Anæmia.....	Anémie.....						
24 Cancer.....	Cancer.....	9	2	11	8		3
25 Scrofula and other forms of Tuberculosis.....	Scrofules et autres formes de Tubercule.....						
26 Phthisis.....	Phthisie.....	19	17	36	7	1	28
27 Hydrocephalus.....	Hydrocéphalie.....	1		1			1
28 Other Constitutional Diseases.....	Autres mal. constitutionnelles.....						
DEVELOPMENTAL.	D'ÂGES.						
29 Premature Birth.....	Naissance prématurée.....	4	4	8			8
30 Cyanosis.....	Cyanosis.....						
31 Malformations.....	Difformités.....	1		1			1
32 At Birth.....	A la naissance.....						
33 Child Birth.....	Accouchement.....		3	3	3		
34 Old Age.....	Vieillesse.....	7	4	11	1	6	4
35 Other Developmental.....	Autres maladies d'âges.....						

[illegible]

TABLE I.

CITY OF VICTORIA, B.C.

Continued.

		SEXES.			CIVIL CONDITIONS. — ÉTATS CIVILS.		
DISEASES OR OTHER CAUSES OF DEATH.		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
MALADIES OU AUTRES CAUSES DE DÉCÈS.		—	—	—	—	—	—
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Ve- u- vage.	Non- ma- riés.
LOCAL.	LOCALES.						
Cerebro Spinal Affections	Affections cérébro-spinales	8	5	13	.....	1	12
Apoplexy	Apoplexie	2		2			2
Paralysis	Paralyse	4	4	8	4	1	3
Insanity	Folie						
Epilepsy and Convulsions	Epilepsie et convulsions	11	3	14	1	1	12
Heart and Blood Vessels Dis- eases	Maladies du cœur et des vais- seaux sanguins	25	4	29	6	1	22
Lung diseases	Affections pulmonaires	31	16	47	15	2	30
Quinsy	Angine	1		1			1
Throat Affections	Affections de la gorge	1	1	2			2
Stomach diseases	Maladies de l'estomac	2		2			2
Enteritis and other Affections of the Bowels	Entérites et autres maladies d'intestins	11	6	17	.....	1	16
Peritonitis	Péritonite						
Liver diseases	Maladies du foie	3		3	1	1	1
Spleen diseases	Maladies de la rate						
Dentition	Dentition	4	2	6			6
Diseases of the Urinary organs	Maladies des voies urinaires	8		8			8
Diseases of the Uterus	Maladies de l'utérus						
Carbuncle	Anthrax						
Synovitis	Synovitis						
Joint diseases	Maladies des articulations						
Skin diseases	Maladies de la peau						
Other local diseases	Autres affections locales						
VIOLENT.	VIOLENTES.						
Fractures and contusions	Fractures et contusions	5		5	4		1
Gunshot and wounds	Blessures et armes à feu						
Burns and Scalds	Brûlures	1		1			1
Poison	Empoisonnements						
Drowning	Noyades	9		9	1	1	7
Suffocation	Suffocation	4		4	2		2
Railway accidents	Accidents par les ch. de fer	1	1	2	1		1
Other accidents	Autres accidents	1		1	1		
Infanticide	Infanticide						
Suicide	Suicide	4		4	2		2
Homicide	Homicide						
Hanged (Judicial)	Exécutions de haute justice						
ILL-DEFINED AND NOT SPECIFIED CAUSES.	CAUSES INDÉFINIES ET NON SPÉCIFIÉES.						
Dropsy	Hydropisie	3	3	6	4		2
Abscess	Abcès		1	1	1		1
Hemorrhage	Hémorrhagie	1		1			1
Atrophy and Debility	Atrophie et débilité	5	2	7			7
Sudden (Uncertained)	Subite—causes inconnues						
Not specified and ill-defined	Non spécifiées et indéfinies	2	2	4	1		3
Totals	Totaux	226	100	326	67	18	241

TABLEAU I.																	CITÉ DE VICTORIA C.B.																	Sud.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
Still-Born. — Morts nés.	A G E S.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
	Un- der 1 year.	1 to 2.	2 to 3.	3 to 4.	4 to 5.	Total under 5.	5 to 10.	10 to 15.	15 to 20.	20 to 25.	25 to 35.	35 to 45.	45 to 55.	55 to 65.	65 to 75.	75 and over.	Not given.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
	Au- des- sous de 1 an.	1 à 2.	2 à 3.	3 à 4.	4 à 5.	Total au- des- sous de 5.	5 à 10.	10 à 15.	15 à 20.	20 à 25.	25 à 35.	35 à 45.	45 à 55.	55 à 65.	65 à 75.	75 et plus.	Non don- nés.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
	4			1		5	4			1	2		1						4																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							

TABLE I.

CITY OF BRANTFORD.

DISEASES OR OTHER CAUSES OF DEATH. — MALADIES OU AUTRES CAUSES DE DÉCÈS.		SEXES.			CIVIL CONDITIONS. — ÉTATS CIVILS.		
		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed.	Single
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Ve- uve- ge.	Non- ma- riés.
ZYMOTIC.		ZYMOTIQUES.					
1	Small-Pox						
2	Measles						
3	Scarlet Fever	1		1			1
4	Diphtheria		2	2			2
5	Catarrhal Affections		1	1			1
6	Typhus, Enteric or Typhoid and continued fevers.....	5	3	8	4		4
7	Whooping Cough.....	2		2			2
8	Diarrheal Affections.....	9	13	22	1		21
9	Remittent Fever.....	1		1			1
10	Other Malarial Diseases	1		1	1		
11	Syphilis.....						
12	Erysipelas.....		2	2	1	1	
13	Puerperal Fever						
14	Septicæmia		1	1	1		
15	Other Zymotic Diseases.....						
PARASITIC.		PARASITIQUES.					
16	Thrush						
17	Worms and other Parasites.....						
DIETIC.		DIÉTIQUES.					
18	Privation of Food.....						
19	Scurvy						
20	Alcoholism						
CONSTITUTIONAL.		CONSTITUTIONNELLES.					
21	Rheumatism.....	1		1	1		
22	Purpura						
23	Anæmia						
24	Cancer	2	5	7	6		1
25	Scrofula and other forms of Tuberculosis.....	1	1	2	1		1
26	Phthisis	11	10	21	12	1	8
27	Hydrocephalus.....	1	1	2			2
28	Other Constitutional Diseases.....						
DEVELOPMENTAL.		D'ÂGES.					
29	Premature Birth.....	2	2	4			4
30	Cyanosis						
31	Malformations.....						
32	At Birth						
33	Child Birth.....		6	6	6		
34	Old Age	2	10	12	1	11	
35	Other Developmental						

[illegible]

TABLE I.

CITY OF BRANTFORD.

Continued.

		SEXES.			CIVIL CONDITIONS. — ÉTATS CIVILS.		
DISEASES OR OTHER CAUSES OF DEATH.		Males — Hom- mes.	Fe- males. — Fem- mes.	Totals — Tou- taux.	Mar- ried. — Mariés.	Wi- dowed — Veu- vage.	Single — Non- ma- riés.
MALADIES OU AUTRES CAUSES DE DÉCÈS.							
LOCAL.	LOCALES.						
36 Cerebro Spinal Affections . . .	Affections cérébro-spinales . . .	6	2	8	4		4
37 Apoplexy	Apoplexie	2	3	5	3	2	
38 Paralysis	Paralyxie	2	2	4	3		1
39 Insanity	Folie						
40 Epilepsy and Convulsions . . .	Epilepsie et convulsions . . .	5	5	10			10
41 Heart and Blood Vessels Disea- ses	Maladies du cœur et des vais- seaux sanguins	2	8	10	4	2	4
42 Lung diseases	Affections pulmonaires	7	6	13	2		11
43 Quinsy	Angine						
44 Throat Affections	Affections de la gorge	3	2	5	1		4
45 Stomach diseases	Maladies de l'estomac		3	3	1		2
46 Enteritis and other Affections of the Bowels	Entérites et autres maladies d'intestins	4	5	9	4	1	4
47 Peritonitis	Péritonite						
48 Liver diseases	Maladies du foie		1	1	1		
49 Spleen diseases	Maladies de la rate						
50 Dentition	Dentition						
51 Diseases of the Urinary organs .	Maladies des voies urinaires .	5	1	6	4		2
52 Diseases of the Uterus.	Maladies de l'utérus						
53 Carbuncle	Anthrax						
54 Synovitis	Synovitis						
55 Joint diseases	Maladies des articulations . . .	1		1			1
56 Skin diseases	Maladies de la peau						
57 Other local diseases	Autres affections locales						
VIOLENT.	VIOLENTES.						
58 Fractures and contusions	Fractures et contusions	1		1	1		
59 Gunshot and wounds	Blessures et armes à feu						
60 Burns and Scalds	Brûlures						
61 Poison	Empoisonnements						
62 Drowning	Noyades	1		1		1	
63 Suffocation	Suffocation						
64 Railway accidents	Accidents par les ch. de fer . . .						
65 Other accidents	Autres accidents						
66 Infanticide	Infanticide						
67 Suicide	Suicide						
68 Homicide	Homicide						
69 Hanged (Judicial)	Exécutions de haute justice . . .						
ILL-DEFINED AND NOT SPECIFIED CAUSES.	CAUSES INDÉFINIES ET NON SPÉCIFIÉES.						
70 Dropsy	Hydropisie	3		3	2	1	
71 Abscess	Abcès		1	1	1		
72 Hemorrhage	Hémorrhagie						
73 Atrophy and Debility	Atrophie et débilité	1	3	4		1	3
74 Sudden (Unascertained)	Subite—causes inconnues						
75 Not specified and ill-defined . . .	Non spécifiées et indéfinies . . .						
Totals	Totaux	82	99	181	66	21	94

TABLE I.

CITY OF CHARLOTTETOWN.

		SEXES.			CIVIL CONDITIONS. ÉTATS CIVILS.		
DISEASES OR OTHER CAUSES OF DEATH. MALADIES OU AUTRES CAUSES DE DÉCÈS.		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Veu- vage.	Non- ma- riés.
ZYMOTIC.	ZYMOTIQUES.						
1 Small-Pox.....	Variole.....						
2 Measles.....	Rougeole.....						
3 Scarlet Fever.....	Fièvre scarlatine.....	1		1			1
4 Diphtheria.....	Diphthérie.....						
5 Catarrhal Affections.....	Affections catharrales.....	2	5	7	4		3
6 Typhus, Enteric or Typhoid and continued fevers.....	Typhus, fièvres typhoïdes et fièvres continues.....	4	3	7	3	1	3
7 Whooping Cough.....	Coqueluche.....						
8 Diarrhoeal Affections.....	Diarrhées.....	9	9	18		1	17
9 Remittent Fever.....	Fièvre remittente.....						
10 Other Malarial Diseases.....	Malaria.....						
11 Syphilis.....	Syphilis.....						
12 Erysipelas.....	Erysipèle.....						
13 Puerperal Fever.....	Fièvres puerpérales.....						
14 Septicæmia.....	Septicémie.....	1		1			1
15 Other Zymotic Diseases.....	Autres maladies zymotiques.....						
PARASITIC.	PARASITIQUES.						
16 Thrush.....	Aphthes.....						
17 Worms and other Parasites.....	Vers et autres parasites.....						
DIETIC.	DIÉTIQUES.						
18 Privation of Food.....	Défaut d'alimentation.....						
19 Scurvy.....	Scorbut.....						
20 Alcoholism.....	Ivrognerie.....						
CONSTITUTIONAL.	CONSTITUTIONNELLES.						
21 Rheumatism.....	Rhumatisme.....	1	1	2	1	1	
22 Purpura.....	Purpura.....						
23 Anæmia.....	Anémie.....						
24 Cancer.....	Cancer.....	3		3	2	1	
25 Scrofula and other forms of Tuberculosis.....	Scrofules et autres formes de Tubercule.....						
26 Phthisis.....	Phthisie.....	17	7	24	13		11
27 Hydrocephalus.....	Hydrocéphalie.....	1		1			1
28 Other Constitutional Diseases.....	Autres mal. constitutionnelles.....						
DEVELOPMENTAL.	D'ÂGES.						
29 Premature Birth.....	Naissance prématurée.....						
30 Cyanosis.....	Cyanosis.....						
31 Malformations.....	Difformités.....						
32 At Birth.....	A la naissance.....						
33 Child Birth.....	Accouchement.....		1	1	1		
34 Old Age.....	Vieillesse.....	4	4	8	3	4	1
35 Other Developmental.....	Autres maladies d'âges.....						

TABLEAU I.																			CITÉ DE CHARLOTTETOWN.																		
Still-Born. — Morts nés.	A G E S.																																				
	Un- der 1 year.	1 to 2.	2 to 3.	3 to 4.	4 to 5.	Total under 5.	5 to 10.	10 to 15.	15 to 20.	20 to 25.	25 to 35.	35 to 45.	45 to 55.	55 to 65.	65 to 75.	75 and over.	Not given.																				
	Au- des- sous de 1 an.	1 à 2.	2 à 3.	3 à 4.	4 à 5.	Total au- des- sous de 5.	5 à 10.	10 à 15.	15 à 20.	20 à 25.	25 à 35.	35 à 45.	45 à 55.	55 à 65.	65 à 75.	75 et plus.	Non don- nés.																				
				1		1																															
	1	1				2					2						3																				
	1					1		2		1	3																										
	15	1	1			17										1																					

TABLE I.

CITY OF CHARLOTTETOWN.

Continued.

DISEASES OR OTHER CAUSES OF DEATH. — MALADIES OU AUTRES CAUSES DE DÉCÈS.		SEXES.			CIVIL CONDITIONS. — ÉTATS CIVILS.		
		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Veu- vage.	Non- ma- riés.
LOCAL.	LOCALES.						
36 Cerebro Spinal Affections . . .	Affections cérébro-spinales . .	3	1	4	1		3
37 Apoplexy	Apoplexie	1	3	4	2	1	1
38 Paralysis	Paralyse	2	2	4	2	2	
39 Insanity	Folie	2		2	1		1
40 Epilepsy and Convulsions . . .	Epilepsie et convulsions . . .	3	3	6			6
41 Heart and Blood Vessels Disea- ses	Maladies du cœur et des vais- seaux sanguins	4	5	9	6	1	2
42 Lung diseases	Affections pulmonaires . . .	9	15	24	9	3	12
43 Quinsy	Angine						
44 Throat Affections	Affections de la gorge . . .	3	2	5			5
45 Stomach diseases	Maladies de l'estomac . . .	1	1	2			2
46 Enteritis and other Affections of the Bowels	Entérites et autres maladies d'intestins	4	1	5	2		3
47 Peritonitis	Péritonite						
48 Liver diseases	Maladies du foie	1		1			1
49 Spleen diseases	Maladies de la rate						
50 Dentition	Dentition						
51 Diseases of the Urinary organs	Maladies des voies urinaires .	5	2	7	4		3
52 Diseases of the Uterus	Maladies de l'utérus		1	1	1		
53 Carbuncle	Anthrax						
54 Synovitis	Synovitis						
55 Joint diseases	Maladies des articulations .						
56 Skin diseases	Maladies de la peau						
57 Other local diseases	Autres affections locales . .						
VIOLENT.	VIOLENTES.						
58 Fractures and contusions . . .	Fractures et contusions . . .						
59 Gunshot and wounds	Blessures et armes à feu . . .						
60 Burns and Scalds	Brûlures						
61 Poison	Empoisonnements						
62 Drowning	Noyades	1		1	1		
63 Suffocation	Suffocation						
64 Railway accidents	Accidents par les ch. de fer . .						
65 Other accidents	Autres accidents	2		2	1		1
66 Infanticide	Infanticide						
67 Suicide	Suicide						
68 Homicide	Homicide						
69 Hanged (Judicial)	Exécutions de haute justice .						
ILL-DEFINED AND NOT SPECIFIED CAUSES.	CAUSES INDÉFINIES ET NON SPÉCIFIÉES.						
70 Dropsy	Hydropisie	1	2	3		1	2
71 Abscess	Abcès						
72 Hemorrhage	Hémorrhagie						
73 Atrophy and Debility	Atrophie et débilité	7	7	14	4	3	7
74 Sudden (Unascertained)	Subites causes inconnues . .						
75 Not specified and ill-defined . .	Non spécifiées et indéfinies . .	1	4	5	5		
Totals	Totaux	93	79	172	66	19	87

TABLEAU I.		CITÉ DE CHARLOTTETOWN.														Suite.	
Still-Born.	AGES.																
	Under 1 year.	1 to 2.	2 to 3.	3 to 4.	4 to 5.	Total under 5.	5 to 10.	10 to 15.	15 to 20.	20 to 25.	25 to 35.	35 to 45.	45 to 55.	55 to 65.	65 to 75.	75 and over.	Not given.
	Morts nés.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Au-dessous de 1 an.	1 à 2.	2 à 3.	3 à 4.	4 à 5.	Total au-dessous de 5.	5 à 10.	10 à 15.	15 à 20.	20 à 25.	25 à 35.	35 à 45.	45 à 55.	55 à 65.	65 à 75.	75 et plus.	Non don- nés.
	1					1	2						1		2	1	
												2					
	5					5	1										
									1	1	1	1	1	1	2	2	
	2	2				4	2		1	1	1	1	3		6	5	
	2		1			3	1		1						1		
							1										
	2					2					1				1	1	
													1				
												</					

TABLE I.

CITY OF HULL.

DISEASES OR OTHER CAUSES OF DEATH. — MALADIES OU AUTRES CAUSES DE DÉCÈS.		SEXES.			CIVIL CONDITIONS. — ÉTATS CIVILS.		
		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Veu- vage.	Non- ma- riés.
ZYMOTIC.		ZYMOTIQUES.					
1	Small-Pox.....						
2	Measles.....						
3	Scarlet Fever.....						
4	Diphtheria.....	11	17	28			28
5	Catarrhal Affections.....	1		1	1		
6	Typhus, Enteric or Typhoid and continued fevers.....	1	1	2	1		1
7	Whooping Cough.....	2		2			2
8	Diarrhœal Affections.....	2	3	5			5
9	Remittent Fever.....						
10	Other Malarial Diseases.....						
11	Syphilis.....						
12	Erysipelas.....						
13	Puerperal Fever.....						
14	Septicæmia.....						
15	Other Zymotic Diseases.....						
PARASITIC.		PARASITIQUES					
16	Thrush.....						
17	Worms and other Parasites..						
DIETIC.		DIÉTIQUES.					
18	Privation of Food.....						
19	Scurvy.....						
20	Alcoholism.....						
CONSTITUTIONAL.		CONSTITUTIONNELLES.					
21	Rheumatism.....	1		1	1		
22	Purpura.....						
23	Anæmia.....						
24	Cancer.....	1	1	2	2		
25	Scrofula and other forms of Tuberculosis.....						
26	Phthisis.....	6	11	17	13		4
27	Hydrocephalus.....						
28	Other Constitutional Diseases.						
DEVELOPMENTAL.		D'ÂGES.					
29	Premature Birth.....						
30	Cyanosis.....						
31	Malformations.....						
32	At Birth.....						
33	Child Birth.....		6	6	6		
34	Old Age.....	3	2	5	5		
35	Other Developmental.....						

TABLE I.

CITY OF HULL.

Continued.

DISEASES OR OTHER CAUSES OF DEATH. — MALADIES OU AUTRES CAUSES DE DÉCÈS.		SEXES.			CIVIL CONDITIONS. — ÉTATS CIVILS.		
		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Veu- vage.	Non- ma- riés.
LOCAL.	LOCALES.						
36 Cerebro Spinal Affections....	Affections cérébro-spinales....	2	5	7			7
37 Apoplexy.....	Apoplexie.....						
38 Paralysis.....	Paralysie.....	2	7	9	8		1
39 Insanity.....	Folie.....						
40 Epilepsy and Convulsions.....	Epilepsie et convulsions.....		2	2			2
41 Heart and Blood Vessels Disea- ses.....	Maladies du cœur et des vais- seaux sanguins.....	1	2	3	2	1	
42 Lung diseases.....	Affections pulmonaires.....	13	10	23	11		12
43 Quinsy.....	Angine.....						
44 Throat Affections.....	Affections de la gorge.....	9	1	10			10
45 Stomach diseases.....	Maladies de l'estomac.....	2	1	3	1		2
46 Enteritis and other Affections of the Bowels.....	Entérites et autres maladies d'intestins.....	3	4	7	1		6
47 Peritonitis.....	Péritonite.....						
48 Liver diseases.....	Maladies du foie.....		3	3	3		
49 Spleen diseases.....	Maladies de la rate.....						
50 Dentition.....	Dentition.....	17	14	31			31
51 Diseases of the Urinary organs	Maladies des voies Urinaires.....	2		2	2		
52 Diseases of the Uterus.....	Maladies de l'uterus.....						
53 Carbuncle.....	Anthrax.....						
54 Synovitis.....	Synovitis.....						
55 Joint diseases.....	Maladies des articulations.....						
56 Skin diseases.....	Maladies de la peau.....	1					
57 Other local diseases.....	Autres affections locales.....	1		1	1		
VIOLENT.	VIOLENTES.						
58 Fractures and contusions.....	Fractures et contusions.....						
59 Gunshot and wounds.....	Blessures et armes à feu.....						
60 Burns and Scalds.....	Brûlures.....						
61 Poison.....	Empoisonnements.....						
62 Drowning.....	Noyades.....	3		3	1		2
63 Suffocation.....	Suffocation.....						
64 Railway accidents.....	Accidents par les ch. de fer.....						
65 Other accidents.....	Autres accidents.....	6	1	7	3		4
66 Infanticide.....	Infanticide.....						
67 Suicide.....	Suicide.....						
68 Homicide.....	Homicide.....						
69 Hanged (Judicial).....	Exécutions de haute justice.....						
ILL-DEFINED AND NOT SPECIFIED CAUSES.	CAUSES INDÉFINIES ET NON SPÉCIFIÉES.						
70 Dropsy.....	Hydropisie.....	3	1	4	4		
71 Abscess.....	Abcès.....	2	1	3			3
72 Hemorrhage.....	Hémorrhagie.....		1	1			1
73 Atrophy and Debility.....	Atrophie et débilité.....	79	67	146	3		143
74 Sudden (Unascertained).....	Subite causes inconnues.....						
75 Not specified and ill-defined..	Non spécifiées et indéfinies.....	2	2	4	2		2
Totals.....	Totaux.....	176	163	339	71	1	267

TABLE I.

CITY OF GUELPH.

DISEASES OR OTHER CAUSES OF DEATH. — MALADIES OU AUTRES CAUSES DE DÉCÈS.		SEXES.			CIVIL CONDITIONS. — ÉTATS CIVILS.		
		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
		—	—	—	—	—	—
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Ve- u- vage.	Non- ma- riés.
ZYMOTIC.		ZYMOTIQUES.					
1	Small-Pox						
2	Measles						
3	Scarlet Fever						
4	Diphtheria	15	23	38	2	1	35
5	Catarrhal Affections						
6	Typhus, Enteric or Typhoid						
7	and continued fevers		2	2	1		1
8	Whooping Cough						
9	Diarrhoeal Affections	7	4	11	1		10
10	Remittent Fever						
11	Other Malarial Diseases						
12	Syphilis						
13	Erysipelas						
14	Puerperal Fever						
15	Septicemia						
16	Other Zymotic Diseases						
PARASITIC.		PARASITIQUES					
17	Thrush						
18	Worms and other Parasites						
DIETIC.		DIÉTIQUES.					
19	Privation of Food						
20	Scurvy						
21	Alcoholism						
CONSTITUTIONAL.		CONSTITUTIONNELLES.					
22	Rheumatism	1		1	1		
23	Purpura		1	1			1
24	Anæmia		1	1			1
25	Cancer		4	4	4		
26	Scrofula and other forms of						
27	Tuberculosis						
28	Phthisis	3	6	9	5		4
29	Hydrocephalus	1		1	1		
30	Other Constitutional Diseases		1	1		1	
DEVELOPMENTAL.		D'ÂGES.					
31	Premature Birth						
32	Cyanosis						
33	Malformations						
34	At Birth						
35	Child Birth		2	2	2		
36	Old Age	6	7	13	4	8	1
37	Other Developmental						

TABLE I.

CITY OF GUELPH.

Continued.

DISEASES OR OTHER CAUSES OF DEATH. — MALADIES OU AUTRES CAUSES DE DÉCÈS.		SEXES.			CIVIL CONDITIONS. — ÉTATS CIVILS.		
		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Veu- vage.	Non- ma- riés.
LOCAL.	LOCALES.						
36 Cerebro Spinal Affections . . .	Affections cérébro-spinales. . .	1	3	4	1		3
37 Apoplexy	Apoplexie		4	4	2	2	
38 Paralysis	Paralysie		4	4	3	1	
39 Insanity	Folie						
40 Epilepsy and Convulsions . . .	Epilepsie et convulsions . . .	2	2	4	1		3
41 Heart and Blood Vessels Disea- ses	Maladies du cœur et des vais- seaux sanguins	3	5	8	3	2	3
42 Lung diseases	Affections pulmonaires	11	13	24	7	2	15
43 Quinsy	Angine						
44 Throat Affections	Affections de la gorge						
45 Stomach diseases	Maladies de l'estomac	1		1	1		
46 Enteritis and other Affections of the Bowels	Entérites et autres maladies d'intestins	4	2	6	3		3
47 Peritonitis	Péritonite						
48 Liver diseases	Maladies du foie		2	2	1		1
49 Spleen diseases	Maladies de la rate						
50 Dentition	Dentition						
51 Diseases of the Urinary organs	Maladies des voies urinaires. .	2	3	5	3	1	1
52 Diseases of the Uterus	Maladies de l'uterus		2	2	1		1
53 Carbuncle	Anthrax						
54 Synovitis	Synovitis						
55 Joint diseases	Maladies des articulations. . .						
56 Skin diseases	Maladies de la peau						
57 Other local diseases	Autres affections locales						
VIOLENT.	VIOLENTES.						
58 Fractures and contusions . . .	Fractures et contusions						
59 Gunshot and wounds	Blessures et armes à feu						
60 Burns and Scalds	Brûlures						
61 Poison	Empoisonnements						
62 Drowning	Noyades						
63 Suffocation	Suffocation						
64 Railway accidents	Accidents par les ch. de fer. . .						
65 Other accidents	Autres accidents	1		1			1
66 Infanticide	Infanticide						
67 Suicide	Suicide						
68 Homicide	Homicide						
69 Hanged (Judicial)	Exécutions de haute justice . .						
ILL-DEFINED AND NOT SPECIFIED CAUSES.	CAUSES INDÉFINIES ET NON SPÉCIFIÉES.						
70 Dropsy	Hydropisie						
71 Abscess	Abcès						
72 Hemorrhage	Hémorrhagie						
73 Atrophy and Debility	Atrophie et débilité	8	5	13			13
74 Sudden (Unascertained)	Subite—causes inconnues						
75 Not specified and ill-defined . .	Non spécifiées et indéfinies. . .						
Totals	Totaux	66	96	162	47	18	97

TABLE I.

CITY OF ST. THOMAS.

		SEXES.			CIVIL CONDITIONS. — ÉTATS CIVILS.		
DISEASES OR OTHER CAUSES OF DEATH. — MALADIES OU AUTRES CAUSES DE DÉCÈS.		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Ve- u- vage.	Non- ma- riés.
ZYMOTIC.	ZYMOTIQUES.						
1 Small Pox	Variole						
2 Measles	Rougeole	1		1			1
3 Scarlet Fever	Fièvre scarlatine	2	3	5			5
4 Diphtheria	Diphthérie						
5 Catarrhal Affections	Affections catharrales	1	1	2			2
6 Typhus, Enteric or Typhoid and continued fevers	Typhus, fièvres typhoïdes et fièvres continues	1	2	3			3
7 Whooping Cough	Coqueluche						
8 Diarrheal Affections	Diarrhées	6	3	9			9
9 Remittent Fever	Fièvre remittente						
10 Other Malarial Diseases	Malaria						
11 Syphilis	Syphilis						
12 Erysipelas	Erysipèle						
13 Puerperal Fever	Fièvres puerpérales						
14 Septicæmia	Septicémie						
15 Other Zymotic Diseases	Autres maladies zymotiques						
PARASITIC.	PARASITIQUES.						
16 Thrush	Aphthes						
17 Worms and other Parasites	Vers et autres parasites						
DIETIC.	DIÉTIQUES.						
18 Privation of Food	Défaut d'alimentation						
19 Scurvy	Scorbut						
20 Alcoholism	Ivrognerie						
CONSTITUTIONAL.	CONSTITUTIONNELLES.						
21 Rheumatism	Rhumatisme		1	1			1
22 Purpura	Purpura						
23 Anæmia	Anémie	4	2	6	1		5
24 Cancer	Cancer	3	2	5	4	1	
25 Scrofula and other forms of Tuberculosis	Scrofules et autres formes de Tubercule						
26 Phthisis	Phthisie	8	9	17	10	2	5
27 Hydrocephalus	Hydrocéphalie		1	1			1
28 Other Constitutional Diseases	Autres mal. constitutionnelles		1	1			1
DEVELOPMENTAL.	D'ÂGES.						
29 Premature Birth	Naissance prématurée						
30 Cyanosis	Cyanosis						
31 Malformations	Difformités						
32 At Birth	A la naissance						
33 Child Birth	Accouchement		1	1	1		
34 Old Age	Vieillesse	9	7	16	6	10	
35 Other Developmental	Autres maladies d'âges						

[illegible]

TABLE I.

CITY OF ST. THOMAS.

Continued.

DISEASES OR OTHER CAUSES OF DEATH. MALADIES OU AUTRES CAUSES DE DÉCÈS.		SEXES.			CIVIL CONDITIONS. ÉTATS CIVILS.		
		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Ve- u- vage.	Non- ma- riés.
LOCAL.	LOCALES.						
36 Cerebro Spinal Affections . . .	Affections cérébro-spinales . . .	1	3	4	1		3
37 Apoplexy	Apoplexie		1	1	1		
38 Paralysis	Paralysie	6	3	9	8	1	
39 Insanity	Folie						
40 Epilepsy and Convulsions . . .	Épilepsie et convulsions . . .	2	4	6			6
41 Heart and Blood Vessels Disea- ses	Maladies du cœur et des vais- seaux sanguins	4	4	8	5	1	2
42 Lung diseases	Affections pulmonaires . . .	5	10	15	10	1	4
43 Quinsy	Angine						
44 Throat Affections	Affections de la gorge . . .	3	1	4			4
45 Stomach diseases	Maladies de l'estomac . . .	2	1	3	3		
46 Enteritis and other Affections of the Bowels	Entérites et autres maladies d'intestins	3	8	11	6		5
47 Peritonitis	Péritonite		1	1	1		
48 Liver diseases	Maladies du foie						
49 Spleen diseases	Maladies de la rate						
50 Dentition	Dentition						
51 Diseases of the Urinary organs	Maladies des voies urinaires .						
52 Diseases of the Uterus	Maladies de l'utérus						
53 Carbuncle	Anthrax						
54 Synovitis	Synovitis						
55 Joint diseases	Maladies des articulations . .						
56 Skin diseases	Maladies de la peau						
57 Other local diseases	Autres affections locales . . .						
VIOLENT.	VIOLENTES.						
58 Fractures and contusions . . .	Fractures et contusions . . .	1	1	2	1		1
59 Gunshot and wounds	Blessures et armes à feu . . .						
60 Burns and Scalds	Brûlures						
61 Poison	Empoisonnements						
62 Drowning	Noyades						
63 Suffocation	Suffocation	1		1	1		
64 Railway accidents	Accidents par les ch. de fer . .	1		1	1		
65 Other accidents	Autres accidents						
66 Infanticide	Infanticide						
67 Suicide	Suicide	2		2	1		1
68 Homicide	Homicide						
69 Hanged (Judicial)	Exécutions de haute justice . .						
ILL-DEFINED AND NOT SPECIFIED CAUSES.	CAUSES INDÉFINIES ET NON SPÉCIFIÉES.						
70 Dropsy	Hydropisie		1	1			1
71 Abscess	Abcès						
72 Hemorrhage	Hémorrhagie						
73 Atrophy and Debility	Atrophie et débilité	1		1	1		
74 Sudden (Unascertained)	Subite—causes inconnues . . .						
75 Not specified and ill-defined . .	Non spécifiées et indéfinies . .	1	1	2			2
Totals	Totaux	68	72	140	62	16	62

TABLEAU I.		CITÉ DE ST. THOMAS.														Suite.	
		AGES.															
Still-Born.	Under 1 year.	1 to 2.	2 to 3.	3 to 4.	4 to 5.	Total under 5.	5 to 10.	10 to 15.	15 to 20.	20 to 25.	25 to 35.	35 to 45.	45 to 55.	55 to 65.	65 to 75.	75 and over.	Not given.
Morts nés.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Au-dessous de 1 an.	1 à 2.	2 à 3.	3 à 4.	4 à 5.	Total au-dessous de 5.	5 à 10.	10 à 15.	15 à 20.	20 à 25.	25 à 35.	35 à 45.	45 à 55.	55 à 65.	65 à 75.	75 et plus.	Non don- nés.
		2				2		1				1					36
												1					37
												1		3	2	3	38
	5	1				6											39
																	40
							1		1	1	1	1	1	1	1	2	41
	1	1				2	2				6		1		3	1	42
																	43
	1	1				2	2										44
											1		1	1			45
				2		2		1	1	1	3	2		1			46
															1		47
																	48
																	49
																	50
																	51
																	52
																	53
																	54
																	55
																	56
																	57
																	58
											1	1					59
																	60
																	61
																	62
											1						63
											1						64
																	65
																	66
											1	1					67
																	68
																	69
																	70
												1					71
														1			72
																	73
	2					2											74
																	75
12	21	8	3	2		34	8	3	1	9	24	13	5	9	14	20	

TABLE I.

TOWN OF WINDSOR.

DISEASES OR OTHER CAUSES OF DEATH. — MALADIES OU AUTRES CAUSES DE DÉCES.		SEXES.			CIVIL CONDITIONS. ÉTATS CIVILS.		
		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
		—	—	—	—	—	—
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Veu- vage.	Non- ma- riés.
ZYMOTIC.		ZYMOTIQUES.					
1	Small-Pox						
2	Measles		1	1			1
3	Scarlet Fever						
4	Diphtheria	3	2	5			5
5	Catarrhal Affections						
6	Typhus, Enteric or Typhoid and continued fevers.....	1	3	4	1		3
7	Whooping Cough		1	1			1
8	Diarrhœal Affections.....	6	2	8			8
9	Remittent Fever.....						
10	Other Malarial Diseases	1		1			1
11	Syphilis	1		1			1
12	Erysipelas						
13	Puerperal Fever.....		1	1	1		
14	Septicæmia						
15	Other Zymotic Diseases						
PARASITIC.		PARASITIQUES.					
16	Thrush						
17	Worms and other Parasites.....						
DIETIC.		DIÉTITIQUES.					
18	Privation of Food						
19	Scurvy						
20	Alcoholism						
CONSTITUTIONAL.		CONSTITUTIONNELLES.					
21	Rheumatism						
22	Purpura						
23	Anæmia		2	2	1		1
24	Cancer	1	6	7	4	2	1
25	Scrofula and other forms of Tuberculosis						
26	Phthisis	9	9	18	5		13
27	Hydrocephalus.....		1	1			1
28	Other Constitutional Diseases.						
DEVELOPMENTAL.		D'ÂGES.					
29	Premature Birth.....	2	1	3			3
30	Cyanosis	2	1	3			3
31	Malformations						
32	At Birth						
33	Child Birth.....		1	1			1
34	Old Age	2	1	3		3	
35	Other Developmental						

TABLEAU I. VILLE DE WINDSOR.																	
Still-Born.	AGES.																
	Un-der 1 year.	1 to 2.	2 to 3.	3 to 4.	4 to 5.	Total under 5.	5 to 10.	10 to 15.	15 to 20.	20 to 25.	25 to 35.	35 to 45.	45 to 55.	55 to 65.	65 to 75.	75 and over.	Not given.
	Morts nés.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Au-des-sous de 1 an.	1 à 2.	2 à 3.	3 à 4.	4 à 5.	Total au-des-sous de 5.	5 à 10.	10 à 15.	15 à 20.	20 à 25.	25 à 35.	35 à 45.	45 à 55.	55 à 65.	65 à 75.	75 et plus.	Non don-nés.
		1				1											1
																	2
																	3
				1		1	4										4
																	5
									1	1	2						6
		1				1											7
	7	1				8											8
																	9
										1							10
													1				11
																	12
											1						13
																	14
																	15
																	16
																	17
																	18
																	19
																	20
																	21
																	22
									1	1							23
													2	3	1	1	24
																	25
			1			1		1	7	2	4	1	1	2			26
																	27
																	28
																	29
	3					3											30
3																	31
																	32
										1							33
																3	34
																	35

TABLE I.

TOWN OF WINDSOR.

Continued.

DISEASES OR OTHER CAUSES OF DEATH. — MALADIES OU AUTRES CAUSES DE DÉCÈS.		SEXES.			CIVIL CONDITIONS. — ÉTATS CIVILS.		
		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
		—	—	—	—	—	—
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Veuv- age.	Non- ma- riés.
LOCAL.	LOCALES.						
36 Cerebro Spinal Affections....	Affections cérébro-spinales...	5	7	12	2		10
37 Apoplexy.....	Apoplexie.....	4		4	3		1
38 Paralysis.....	Paralysie.....	1	3	4	3	1	
39 Insanity.....	Folie.....						
40 Epilepsy and Convulsions....	Epilepsie et convulsions....	3	4	7			7
41 Heart and Blood Vessels Disea- ses.....	Maladies du cœur et des vais- seaux sanguins.....	7	5	12	9	2	1
42 Lung diseases.....	Affections pulmonaires....	13	9	22	6	1	15
43 Quinsy.....	Angine.....						
44 Throat Affections.....	Affections de la gorge.....	1	1	2			2
45 Stomach diseases.....	Maladies de l'estomac.....	4	2	6	2		4
46 Enteritis and other Affections of the Bowels.....	Entérites et autres maladies d'intestins.....	3	1	4			4
47 Peritonitis.....	Péritonite.....	1		1			1
48 Liver diseases.....	Maladies du foie.....	1		1	1		
49 Spleen diseases.....	Maladies de la rate.....						
50 Dentition.....	Dentition.....						
51 Diseases of the Urinary organs	Maladies des voies urinaires..	5		5	4	1	
52 Diseases of the Uterus.....	Maladies de l'utérus.....						
53 Carbuncle.....	Anthrax.....						
54 Synovitis.....	Synovitis.....						
55 Joint diseases.....	Maladies des articulations....						
56 Skin diseases.....	Maladies de la peau.....						
57 Other local diseases.....	Autres affections locales.....						
VIOLENT.	VIOLENTES.						
58 Fractures and contusions....	Fractures et contusions....						
59 Gunshot and wounds.....	Blessures et armes à feu....						
60 Burns and Scalds.....	Brûlures.....						
61 Poison.....	Empoisonnements.....						
62 Drowning.....	Noyades.....	2		2			2
63 Suffocation.....	Suffocation.....	2		2			2
64 Railway accidents.....	Accidents par les ch. de fer..						
65 Other accidents.....	Autres accidents.....						
66 Infanticide.....	Infanticide.....						
67 Suicide.....	Suicide.....						
68 Homicide.....	Homicide.....						
69 Hanged (Judicial).....	Exécutions de haute justice..						
ILL-DEFINED AND NOT SPECIFIED CAUSES.	CAUSES INDÉFINIES ET NON SPÉCIFIÉES.						
70 Dropsy.....	Hydropisie.....	1		1	1		
71 Abscess.....	Abscès.....						
72 Hemorrhage.....	Hémorrhagie.....						
73 Atrophy and Debility.....	Atrophie et débilité.....	5	2	7	1	2	4
74 Sudden (Unascertained).....	Subite—causes inconnues.....						
75 Not specified and ill-defined..	Non spécifiées et indéfinies...	1	1	2			2
Totals.....	Totaux.....	87	67	154	44	12	98

TABLEAU I.		VILLE DE WINDSOR.															<i>Suite.</i>	
Still Born.	Morts nés.	A G E S.																
		Un- der 1 year.	1 to 2.	2 to 3.	3 to 4.	4 to 5.	Total under 5.	5 to 10.	10 to 15.	15 to 20.	20 to 25.	25 to 35.	35 to 45.	45 to 55.	55 to 65.	65 to 75.	75 and over.	Not given.
		Au- des- sous de 1 an.	1 à 2.	2 à 3.	3 à 4.	4 à 5.	Total au- des- sous de 5.	5 à 10.	10 à 15.	15 à 20.	20 à 25.	25 à 35.	35 à 45.	45 à 55.	55 à 65.	65 à 75.	75 et plus.	Non don- nés.
			2	1	1	1	5	1	1	2		2	1					36
													2					37
															1	1	2	38
																		39
		5		1			6											40
		1					1						2	2	4	1	2	41
		5	6	2			13	1	1				1	1	4		1	42
					1		1		1									43
		4					4							1		1		44
																		45
		3	1				4											46
										1								47
													1					48
																		49
												1		1	1	1	1	50
																		51
																		52
																		53
																		54
																		55
																		56
																		57
																		58
																		59
																		60
																		61
		2					2	1		1								62
																		63
																		64
																		65
																		66
																		67
																		68
																		69
																	1	70
																		71
		3					3			1						1	2	72
																		73
		1	1				2											74
																		75
11	37	13	5	3	1	59	7	5	13	4	12	8	9	16	7	13	1	

TABLE I.

CITY OF SHERBROOKE.

DISEASES OR OTHER CAUSES OF DEATH. — MALADIES OU AUTRES CAUSES DE DÉCÈS.		SEXES.			CIVIL CONDITIONS. — ÉTATS CIVILS.		
		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Veu- vage.	Non- ma- riés.
ZYMOTIC.		ZYMOTIQUES.					
1	Small-Pox.....	Variole.....	1	2	3		3
2	Measles.....	Rougeole.....	6	6	12		12
3	Scarlet Fever.....	Fièvre scarlatine.....					
4	Diphtheria.....	Diphthérie.....	17	14	31		31
5	Catarrhal Affections.....	Affections catharrales.....		4	4	1	3
6	Typhus, Enteric or Typhoid and continued fevers.....	Typhus, fièvres typhoides et fièvres continues.....	3	3	6	2	4
7	Whooping Cough.....	Coqueluche.....	1	4	5		5
8	Diarrhoeal Affections.....	Diarrhées.....	20	15	35		35
9	Remittent Fever.....	Fièvre remittente.....	1		1		1
10	Other Malarial Diseases.....	Malaria.....					
11	Syphilis.....	Syphilis.....					
12	Erysipelas.....	Erysipèle.....					
13	Puerperal Fever.....	Fièvres puerpérales.....		2	2	2	
14	Septicæmia.....	Septicémie.....					
15	Other Zymotic Diseases.....	Autres maladies zymotiques.....					
PARASITIC.		PARASITIQUES.					
16	Thrush.....	Aphthes.....					
17	Worms and other Parasites.....	Vers et autres parasites.....					
DIETIC.		DIÉTIQUES.					
18	Privation of Food.....	Défaut d'alimentation.....					
19	Scurvy.....	Scorbut.....					
20	Alcoholism.....	Ivrognerie.....					
CONSTITUTIONAL.		CONSTITUTIONNELLES.					
21	Rheumatism.....	Rhumatisme.....	2	1	3	2	1
22	Purpura.....	Purpura.....		1	1	1	
23	Anæmia.....	Anémie.....		1	1	1	
24	Cancer.....	Cancer.....	1	4	5	4	1
25	Scrofula and other forms of Tuberculosis.....	Scrofules et autres formes de Tubercule.....	1		1		1
26	Phthisis.....	Phthisie.....	13	15	28	12	15
27	Hydrocephalus.....	Hydrocéphalie.....	1	1	2		2
28	Other Constitutional Diseases.....	Autres mal. constitutionnelles.....	1		1		1
DEVELOPMENTAL.		D'ÂGES.					
29	Premature Birth.....	Naissance prématurée.....	4	7	11		11
30	Cyanosis.....	Cyanosis.....					
31	Malformations.....	Difformités.....					
32	At Birth.....	A la naissance.....					
33	Child Birth.....	Accouchement.....					
34	Old Age.....	Vieillesse.....	5	6	11	4	7
35	Other Developmental.....	Autres maladies d'âges.....					

TABLE I.

CITY OF SHERBROOKE.

Continued.

DISEASES OR OTHER CAUSES OF DEATH. — MALADIES OU AUTRES CAUSES DE DÉCÈS.		SEXES.			CIVIL CONDITIONS. — ÉTATS CIVILS.		
		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
		Hom- mes.	Fem- mes.	To- taux.	Mar- riés.	Veuv- age.	Non- mar- riés.
LOCAL.	LOCALES.						
36 Cerebro Spinal Affections.	Affections cérébro-spinales.	8	6	14	3		11
37 Apoplexy.	Apoplexie.		1	1	1		
38 Paralysis.	Paralysie.	3	2	5	4		1
39 Insanity.	Folie.						
40 Epilepsy and Convulsions.	Epilepsie et convulsions.	3	2	5	1		4
41 Heart and Blood Vessels Dis- eases.	Maladies du cœur et des vais- seaux sanguins.	7	6	13	6	4	3
42 Lung diseases.	Affections pulmonaires.	14	10	24	4	2	18
43 Quinsy.	Angine.		1	1			1
44 Throat Affections.	Affections de la gorge.	2	5	7			7
45 Stomach diseases.	Maladies de l'estomac.		2	2			2
46 Enteritis and other Affections of the Bowels.	Entérites et autres maladies d'intestins.	8	6	14	2		12
47 Peritonitis.	Péritonite.						
48 Liver diseases.	Maladies du foie.		2	2		2	
49 Spleen diseases.	Maladies de la rate.						
50 Dentition.	Dentition.	8	8	16			16
51 Diseases of the Urinary organs	Maladies des voies urinaires.	2	1	3	3		
52 Diseases of the Uterus.	Maladies de l'utérus.						
53 Carbuncle.	Anthrax.						
54 Synovitis.	Synovitis.						
55 Joint diseases.	Maladies des articulations.						
56 Skin diseases.	Maladies de la peau.						
57 Other local diseases.	Autres affections locales.						
VIOLENT.	VIOLENTES.						
58 Fractures and contusions.	Fractures et contusions.	1		1	1		
59 Gunshot and wounds.	Blessures et armes à feu.						
60 Burns and Scalds.	Brûlures.	1		1	1		
61 Poison.	Empoisonnements.						
62 Drowning.	Noyades.	1	1	2			2
63 Suffocation.	Suffocation.	2	1	3			3
64 Railway accidents.	Accidents par les ch. de fer.						
65 Other accidents.	Autres accidents.	1	1	2	1		1
66 Infanticide.	Infanticide.						
67 Suicide.	Suicide.	2		2	1	1	
68 Homicide.	Homicide.						
69 Hanged (Judicial).	Exécutions de haute justice.						
ILL-DEFINED AND NOT SPECIFIED CAUSES.	CAUSES INDÉFINIES ET NON SPÉCIFIÉES.						
70 Dropsy.	Hydropisie.	1	3	4	1		3
71 Abscess.	Abscès.						
72 Hemorrhage.	Hémorrhagie.						
73 Atrophy and Debility.	Atrophie et débilité.	19	12	31	2	2	27
74 Sudden (Unascertained).	Subite—causes inconnues.						
75 Not specified and ill-defined.	Non spécifiées et indéfinies.	1		1		1	
Totals.	Totaux.	161	156	317	60	20	237

TABLEAU I.		CITÉ DE SHERBROOKE.															Suite.	
Still-Born.	Morts nés.	AGES.																
		Un-der 1 year.	1 to 2.	2 to 3.	3 to 4.	4 to 5.	Total under 5.	5 to 10.	10 to 15.	15 to 20.	20 to 25.	25 to 35.	35 to 45.	45 to 55.	55 to 65.	65 to 75.	75 and over.	Not given.
		Au-dessous de 1 an.	1 à 2.	2 à 3.	3 à 4.	4 à 5.	Total au-dessous de 5.	5 à 10.	10 à 15.	15 à 20.	20 à 25.	25 à 35.	35 à 45.	45 à 55.	55 à 65.	65 à 75.	75 et plus.	Non don- nés.
		2	3	3		1	9		1	1	1	1			1			36
					1		1							1	2	1	1	37
																		38
	2				1		3	1		1								39
																		40
			1				1				2	1	1	1	2	3	3	41
	6	3	2	1			12	3	1			1	1	1	3	2	1	42
	2	1	1	3		1	1											43
	2						2											44
																		45
	4	3					7	2	1	1			1	1	1			46
																1	1	47
																		48
	5	10	1				16											49
													1		2			50
																		51
																		52
																		53
																		54
																		55
																		56
																		57
													1					58
												1						59
																		60
									1	1								61
	3						3											62
																		63
		1					1							1				64
																		65
											1		1					66
																		67
																		68
																		69
				1			1	1	1								1	70
																		71
	26	1					27					1				2	1	72
																		73
																1		74
																		75
5	107	33	19	10	10	179	27	7	6	6	19	10	11	20	14	18	...	

TABLE I.

CITY OF BELLEVILLE.

DISEASES OR OTHER CAUSES OF DEATH. — MALADIES OU AUTRES CAUSES DE DÉCÈS.		SEXES.			CIVIL CONDITIONS. — ÉTATS CIVILS.		
		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
		—	—	—	—	—	—
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Veuv- vage.	Non- ma- riés.
ZYMOTIC.		ZYMOTIQUES.					
1	Small-Pox.....						
2	Measles.....						
3	Scarlet Fever.....						
4	Diphtheria.....						
5	Catarrhal Affections.....						
6	Typhus, Enteric or Typhoid and continued fevers.....	1	1	2	1		1
7	Whooping Cough.....						
8	Diarrhoeal Affections.....	7	9	16	1		15
9	Remittent Fever.....						
10	Other Malarial Diseases.....						
11	Syphilis.....						
12	Erysipelas.....	1		1	1		
13	Puerperal Fever.....						
14	Septicæmia.....	1		1	1		
15	Other Zymotic Diseases.....						
PARASITIC.		PARASITIQUES.					
16	Thrush.....						
17	Worms and other Parasites.....						
DIETIC.		DIÉTIQUES.					
18	Privation of Food.....						
19	Scurvy.....						
20	Alcoholism.....						
CONSTITUTIONAL.		CONSTITUTIONNELLES.					
21	Rheumatism.....	1	1	2	2		
22	Purpura.....						
23	Anæmia.....	1		1			1
24	Cancer.....	3	2	5	5		
25	Scrofula and other forms of Tuberculosis.....						
26	Phthisis.....	8	12	20	6	1	13
27	Hydrocephalus.....		2	2			2
28	Other Constitutional Diseases.....						
DEVELOPMENTAL.		D'ÂGES.					
29	Premature Birth.....						
30	Cyanosis.....						
31	Malformations.....						
32	At Birth.....						
33	Child Birth.....		3	3	3		
34	Old Age.....	3	7	10	10		
35	Other Developmental.....						

TABLE I.

CITY OF BELLEVILLE.

Continued.

DISEASES OR OTHER CAUSES OF DEATH. MALADIES OU AUTRES CAUSES DE DÉCÈS.		SEXES.			CIVIL CONDITIONS. ÉTATS CIVILS.		
		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Veu- vage.	Non- ma- riés.
LOCAL.	LOCALES.						
36 Cerebro Spinal Affections	Affections cérébro-spinales....	1	2	3			3
37 Apoplexy	Apoplexie		1	1	1		
38 Paralysis	Paralysie	4	5	9	8		1
39 Insanity	Folle						
40 Epilepsy and Convulsions	Epilepsie et convulsions	1		1			1
41 Heart and Blood Vessels Disea- ses	Maladies du cœur et des vais- seaux sanguins	3	2	5	2	1	2
42 Lung diseases	Affections pulmonaires	6	9	15	8	2	5
43 Quinsy	Angine						
44 Throat Affections	Affections de la gorge	1	2	3			3
45 Stomach diseases	Maladies de l'estomac						
46 Enteritis and other Affections of the Bowels	Entérites et autres maladies d'intestins	2	3	5	4		1
47 Peritonitis	Péritonite	1		1	1		
48 Liver diseases	Maladies du foie	1		1	1		
49 Spleen diseases	Maladies de la rate						
50 Dentition	Dentition						
51 Diseases of the Urinary organs	Maladies des voies urinaires..	3	1	4	3		1
52 Diseases of the Uterus	Maladies de l'utérus						
53 Carbuncle	Anthrax						
54 Synovitis	Synovitis						
55 Joint diseases	Maladies des articulations						
56 Skin diseases	Maladies de la peau						
57 Other local diseases	Autres affections locales						
VIOLENT.	VIOLENTES.						
58 Fractures and contusions	Fractures et contusions	1		1	1		
59 Gunshot and wounds	Blessures et armes à feu						
60 Burns and Scalds	Brûlures						
61 Poison	Empoisonnements						
62 Drowning	Noyades						
63 Suffocation	Suffocation						
64 Railway accidents	Accidents par les ch. de fer ..	2		2	1		1
65 Other accidents	Autres accidents						
66 Infanticide	Infanticide						
67 Suicide	Suicide	1		1			1
68 Homicide	Homicide		1	1	1		
69 Hanged (Judicial)	Exécutions de haute justice ..	1		1	1		
ILL-DEFINED AND NOT SPECIFIED CAUSES.	CAUSES INDÉFINIES ET NON SPÉCIFIÉES.						
70 Dropsy	Hydropisie	2	2	4	3	1	
71 Abscess	Abcès						
72 Hemorrhage	Hémorrhagie						
73 Atrophy and Debility	Atrophie et débilité	1	2	3	2		1
74 Sudden (Unascertained)	Subite—causes inconnues						
75 Not specified and ill-defined	Non spécifiées et indéfinies	1	1	2	1		1
Totals	Totaux	58	68	126	68	5	53

TABLEAU I.		CITÉ DE BELLEVILLE.														Suite.	
Still-Born.	A G E S.																Not given.
	Under 1 year.	1 to 2.	2 to 3.	3 to 4.	4 to 5.	Total under 5.	5 to 10.	10 to 15.	15 to 20.	20 to 25.	25 to 35.	35 to 45.	45 to 55.	55 to 65.	65 to 75.	75 and over.	
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Morts nés.	An-des-sous de 1 an.	1 à 2.	2 à 3.	3 à 4.	4 à 5.	Total au-des-sous de 5.	5 à 10.	10 à 15.	15 à 20.	20 à 25.	25 à 35.	35 à 45.	45 à 55.	55 à 65.	65 à 75.	75 et plus.	Non don-nés.
			1			1	1						1				
								1					1	4	1	2	
										1							
	1	2		1		4				1	1	1		2	6	1	
				1	2	3											
										1	1				3		
												1					
												1					
													1				
														1	2		

TABLE I.

TOWN OF PETERBOROUGH.

DISEASES OR OTHER CAUSES OF DEATH. — MALADIES OU AUTRES CAUSES DE DÉCÈS.		SEXES.			CIVIL CONDITIONS. — ÉTATS CIVILS.		
		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Ve- vage.	Non- ma- riés.
ZYMOTIC.		ZYMOTIQUES.					
1	Small-Pox	Variole					
2	Measles	Rougeole		1	2	3	3
3	Scarlet Fever	Fièvre scarlatine					
4	Diphtheria	Diphthérie		5	4	9	9
5	Catarrhal Affections	Affections catharrales		1		1	
6	Typhus, Enteric or Typhoid and continued fevers.....	Typhus, fièvres typhoïdes et fièvres continues		2	3	5	2
7	Whooping Cough.....	Coqueluche					3
8	Diarrhœal Affections.....	Diarrhées		3	6	9	1
9	Remittent Fever.....	Fièvre remittente					1
10	Other Malarial Diseases	Malaria		1	1	2	
11	Syphilis.....	Syphilis					2
12	Erysipelas	Erysipèle					
13	Puerperal Fever	Fièvres puerpérales					
14	Septicemia	Septicémie					
15	Other Zymotic Diseases.....	Autres maladies zymotiques					
PARASITIC.		PARASITIQUES.					
16	Thrush	Aphthes					
17	Worms and other Parasites...	Vers et autres parasites					
DIETIC.		DIÉTIQUES.					
18	Privation of Food.....	Défaut d'alimentation					
19	Scurvy	Scorbut					
20	Alcoholism	Ivrognerie					
CONSTITUTIONAL.		CONSTITUTIONNELLES.					
21	Rheumatism	Rhumatisme					
22	Purpura	Purpura					
23	Anæmia	Anémie			1	1	1
24	Cancer	Cancer		1		1	
25	Scrofula and other forms of Tuberculosis	Scrofules et autres formes de Tubercule					
26	Phthisis	Phthisie		5	7	12	5
27	Hydrocephalus.....	Hydrocéphalie		3		3	2
28	Other Constitutional Diseases.	Autres mal. constitutionnelles.					
DEVELOPMENTAL.		D'ÂGES.					
29	Premature Birth.....	Naissance prématurée.....		1		1	1
30	Cyanosis.....	Cyanosis					
31	Malformations.....	Difformités		1		1	1
32	At Birth	A la naissance					
33	Child Birth.....	Accouchement					
34	Old Age	Vieillesse		10	9	19	3
35	Other Developmental	Autres maladies d'âges					14

TABLE I.

TOWN OF PETERBOROUGH.

Continued.

DISEASES OR OTHER CAUSES OF DEATH. — MALADIES OU AUTRES CAUSES DE DÉCÈS.		SEXES.			CIVIL CONDITIONS. — ÉTATS CIVILS.		
		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Ve- uve.	Non- ma- riés.
LOCAL.	LOCALES.						
36 Cerebro Spinal Affections ...	Affections cérébro-spinales...	4	6	10	3		7
37 Apoplexy	Apoplexie	3	1	4	3	1	
38 Paralysis	Paralysie		1	1	1		
39 Insanity	Folie						
40 Epilepsy and Convulsions	Epilepsie et convulsions		2	2			2
41 Heart and Blood Vessels Diseases	Maladies du cœur et des vais- seaux sanguins	7	2	9	5	2	2
42 Lung diseases	Affections pulmonaires	19	11	30	10	7	13
43 Quinsy	Angine						
44 Throat Affections	Affections de la gorge	2	1	3			3
45 Stomach diseases	Maladies de l'estomac	1		1	1		
46 Enteritis and other Affections of the Bowels	Entérites et autres maladies d'intestins	8	4	12	5		7
47 Peritonitis	Péritonite						
48 Liver diseases	Maladies du foie		2	2	1		1
49 Spleen diseases	Maladies de la rate						
50 Dentition	Dentition						
51 Diseases of the Urinary organs	Maladies des voies urinaires	4	3	7	5		2
52 Diseases of the Uterus	Maladies de l'uterus						
53 Carbuncle	Anthrax						
54 Synovitis	Synovitis						
55 Joint diseases	Maladies des articulations		1	1			1
56 Skin diseases	Maladies de la peau						
57 Other local diseases	Autres affections locales						
VIOLENT.	VIOLENTES.						
58 Fractures and contusions	Fractures et contusions						
59 Gunshot and wounds	Blessures et armes à feu						
60 Burns and Scalds	Brûlures						
61 Poison	Empoisonnements						
62 Drowning	Noyades	2		2			2
63 Suffocation	Suffocation						
64 Railway accidents	Accidents par les ch. de fer						
65 Other accidents	Autres accidents						
66 Infanticide	Infanticide						
67 Suicide	Suicide						
68 Homicide	Homicide						
69 Hanged (Judicial)	Exécutions de haute justice						
ILL-DEFINED AND NOT SPECIFIED CAUSES.	CAUSES INDÉFINIES ET NON SPÉCIFIÉES.						
70 Dropsy	Hydropisie		1	1	1		
71 Abscess	Abcès						
72 Hemorrhage	Hémorrhagie						
73 Atrophy and Debility	Atrophie et débilité	4	5	9	1	1	7
74 Sudden (Unascertained)	Subite causes inconnues						
75 Not specified and ill-defined	Non spécifiées et indéfinies	1	1	2	2		
Totals	Totaux	89	74	163	51	29	83

TABLEAU I. VILLE DE PETERBOROUGH. <i>Suite.</i>																	
Still-Born.	AGES.																
	Under 1 year.	1 to 2.	2 to 3.	3 to 4.	4 to 5.	Total under 5.	5 to 10.	10 to 15.	15 to 20.	20 to 25.	25 to 35.	35 to 45.	45 to 55.	55 to 65.	65 to 75.	75 and over.	Not given.
	Morts nés.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Au-dessous de 1 an.	1 à 2.	2 à 3.	3 à 4.	4 à 5.	Total au-dessous de 5.	5 à 10.	10 à 15.	15 à 20.	20 à 25.	25 à 35.	35 à 45.	45 à 55.	55 à 65.	65 à 75.	75 et plus.	Non don-nés.
		4		1		5			1	1			1	1	1		36
											1			2	2		37
																	38
	1	1				2											39
																	40
							1				1	3		1	2	1	41
	6	6				12				2	4	3	3	3	3	3	42
	1	1		1		3											43
											1						44
																	45
	3	2				5				1	2	2	1			1	46
							1								1		47
																	48
								1	1				2		1	2	49
																	50
																	51
																	52
																	53
							1										54
																	55
																	56
																	57
																	58
																	59
																	60
							1			1							61
																	62
																	63
																	64
																	65
																	66
																	67
																	68
																	69
												1					70
																	71
	7					7								1	1		72
																	73
													1	1			74
																	75
15	29	15		7		51	7	4	4	7	10	17	11	11	17	24	

TABLE I.

CITY OF STRATFORD.

		SEXES.			CIVIL CONDITIONS. ÉTATS CIVILS.		
DISEASES OR OTHER CAUSES OF DEATH. — MALADIES OU AUTRES CAUSES DE DÉCÈS.		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Veu- vage.	Non- ma- riés.
ZYMOTIC.	ZYMOTIQUES.						
1 Small-Pox.....	Variole.....						
2 Measles.....	Rougeole.....						
3 Scarlet Fever.....	Fièvre scarlatine.....						
4 Diphtheria.....	Diphthérie.....	7	8	15			15
5 Catarrhal Affections.....	Affections catharrales.....	2		2	1	1	
6 Typhus, Enteric or Typhoid and continued fevers.....	Typhus, fièvres typhoïdes et fièvres continues.....		1	1	1		
7 Whooping Cough.....	Coqueluche.....	1		1			1
8 Diarrhœal Affections.....	Diarrhées.....	2	2	4			4
9 Remittent Fever.....	Fièvre remittente.....						
10 Other Malarial Diseases.....	Malaria.....						
11 Syphilis.....	Syphilis.....						
12 Erysipelas.....	Erysipèle.....	1		1			1
13 Puerperal Fever.....	Fièvres puerpérales.....						
14 Septicæmia.....	Septicémie.....						
15 Other Zymotic Diseases.....	Autres maladies zymotiques.....						
PARASITIC.	PARASITIQUES.						
16 Thrush.....	Aphthes.....						
17 Worms and other Parasites...	Vers et autres parasites.....						
DIETIC.	DIÉTIQUES.						
18 Privation of Food.....	Défaut d'alimentation.....						
19 Scurvy.....	Scorbut.....						
20 Alcoholism.....	Ivrognerie.....						
CONSTITUTIONAL.	CONSTITUTIONNELLES.						
21 Rheumatism.....	Rhumatisme.....						
22 Purpura.....	Purpura.....						
23 Anæmia.....	Anémie.....						
24 Cancer.....	Cancer.....	2	2	4	2	2	
25 Scrofula and other forms of Tuberculosis.....	Scrofules et autres formes de Tubercule.....						
26 Phthisis.....	Phthisie.....	3	6	9	2		7
27 Hydrocephalus.....	Hydrocéphalie.....	1	1	2			2
28 Other Constitutional Diseases.	Autres mal. constitutionnelles.						
DEVELOPMENTAL.	D'ÂGES.						
29 Premature Birth.....	Naissance prématurée.....	2	1	3			3
30 Cyanosis.....	Cyanosis.....						
31 Malformations.....	Difformités.....						
32 At Birth.....	A la naissance.....						
33 Child Birth.....	Accouchement.....		1	1	1		
34 Old Age.....	Vieillesse.....	4	3	7	2	4	1
35 Other Developmental.....	Autres maladies d'âges.....						

TABLEAU I.																		CITÉ DE STRATFORD.																	
Still-Born. — Morts nés.	A G E S.																																		
	Un-der 1 year.	1 to 2.	2 to 3.	3 to 4.	4 to 5.	Total under 5.	5 to 10.	10 to 15.	15 to 20.	20 to 25.	25 to 35.	35 to 45.	45 to 55.	55 to 65.	65 to 75.	75 and over.	Not given.																		
	Au-des-sous de 1 an.	1 à 2.	2 à 3.	3 à 4.	4 à 5.	Total au-des-sous de 5.	5 à 10.	10 à 15.	15 à 20.	20 à 25.	25 à 35.	35 à 45.	45 à 55.	55 à 65.	65 à 75.	75 et plus.	Non don-nés.																		
	1	1	2	1		5	7	2	1							1																			
	1					1						1																							
	4					4																													
	1					1																													
				</																															

TABLE I.

CITY OF STRATFORD.

Continued.

DISEASES OR OTHER CAUSES OF DEATH. — MALADIES OU AUTRES CAUSES DE DÉCÈS.		SEXES.			CIVIL CONDITIONS. — ÉTATS CIVILS.		
		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
		—	—	—	—	—	—
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Veuv- age.	Non- ma- riés.
LOCAL.	LOCALES.						
36 Cerebro Spinal Affections . . .	Affections cérébro-spinales . .	1	1	2			2
37 Apoplexy	Apoplexie	2		2	1	1	
38 Paralysis	Paralyse	1		1	1		
39 Insanity	Folie						
40 Epilepsy and Convulsions . . .	Epilepsie et convulsions . . .	4	2	6			6
41 Heart and Blood Vessels Disea- ses	Maladies du cœur et des vais- seaux sanguins	5	2	7	4	1	2
42 Lung diseases	Affections pulmonaires . . .	2	4	6	1	2	3
43 Quinsy	Angine						
44 Throat Affections	Affections de la gorge . . .						
45 Stomach diseases	Maladies de l'estomac . . .	2	2	4	2		2
46 Enteritis and other Affections of the Bowels	Entérites et autres maladies d'intestins	1	1	2		1	1
47 Peritonitis	Péritonite						
48 Liver diseases	Maladies du foie						
49 Spleen diseases	Maladies de la rate						
50 Dentition	Dentition						
51 Diseases of the Urinary organs	Maladies des voies urinaires .	1	2	3	2		1
52 Diseases of the Uterus	Maladies de l'utérus						
53 Carbuncle	Anthrax						
54 Synovitis	Synovitis						
55 Joint diseases	Maladies des articulations . .						
56 Skin diseases	Maladies de la peau						
57 Other local diseases	Autres affections locales . . .						
VIOLENT.	VIOLENTES.						
58 Fractures and contusions . . .	Fractures et contusions . . .						
59 Gunshot and wounds	Blessures et armes à feu . . .						
60 Burns and Scalds	Brûlures						
61 Poison	Empoisonnements	1		1			1
62 Drowning	Noyades	1		1			1
63 Suffocation	Suffocation						
64 Railway accidents	Accidents par les ch. de fer . .	1	1	2	2		
65 Other accidents	Autres accidents						
66 Infanticide	Infanticide						
67 Suicide	Suicide	1	1	2	2		
68 Homicide	Homicide						
69 Hanged (Judicial)	Exécutions de haute justice . .						
ILL-DEFINED AND * NOT SPECIFIED CAUSES.	CAUSES INDÉFINIES ET NON SPÉCIFIÉES.						
70 Dropsy	Hydropisie	3		3	3		
71 Abscess	Abcès						
72 Hemorrhage	Hémorrhagie	1		1	1		
73 Atrophy and Debility	Atrophie et débilité	2		2	1		1
74 Sudden (Unascertained)	Subite—causes inconnues . . .						
75 Not specified and ill-defined . .	Non spécifiées et indéfinies . .	1	1	2			2
Totals	Totaux	55	42	97	29	12	56

TABLEAU I. CITÉ DE STRATFORD. <i>Suite.</i>																	
Still-Born.	A G E S.																
	Un- der 1 year.	1 to 2.	2 to 3.	3 to 4.	4 to 5.	Total under 5.	5 to 10.	10 to 15.	15 to 20.	20 to 25.	25 to 35.	35 to 45.	45 to 55.	55 to 65.	65 to 75.	75 and over.	Not given.
	— Morts- nés.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Au- des- sous de 1 an.	1 à 2.	2 à 3.	3 à 4.	4 à 5.	Total au- des- sous de 5.	5 à 10.	10 à 15.	15 à 20.	20 à 25.	25 à 35.	35 à 45.	45 à 55.	55 à 65.	65 à 75.	75 et plus.	Non don- nés.
	2					2											36
																2	37
																1	38
	4	1				5		1									39
																	40
	1					1	2	1		1	1		4		1	1	41
													1				42
																	43
	1			1		2								1	1		44
																	45
	1					1				1							46
																	47
																	48
																	49
	1					1								2			50
																	51
																	52
																	53
																	54
																	55
																	56
																	57
																	58
																	59
				1		1		1									60
																	61
																	62
												1	1				63
																	64
																	65
												1		1			66
																	67
																	68
																	69
													1		1	1	70
															1		71
																2	72
																	73
	2					2											74
																	75
	24	3	2	3		32	9	3	4	3	5	4	6	10	4	17	

TABLE I.

CITY OF CHATHAM, ONT.

DISEASES OR OTHER CAUSES OF DEATH. MALADIES OU AUTRES CAUSES DE DÉCÈS.		SEXES.			CIVIL CONDITIONS. ÉTATS CIVILS.		
		Males	Females	Totals	Married.	Widowed	Single
		Hommes.	Femmes.	Totaux.	Mariés.	Veuvage.	Non-mariés.
ZYMOTIC.		ZYMOTIQUES.					
1	Small-Pox.....						
2	Measles.....		1	1			1
3	Scarlet Fever.....	5	4	9	1		8
4	Diphtheria.....	1		1			1
5	Catarrhal Affections.....	2	3	5		2	3
6	Typhus, Enteric or Typhoid and continued fevers.....	1	4	5	3		2
7	Whooping Cough.....						
8	Diarrhoeal Affections.....	4	2	6			6
9	Remittent Fever.....						
10	Other Malarial Diseases.....						
11	Syphilis.....						
12	Erysipelas.....	1		1	1		
13	Puerperal Fever.....						
14	Septicæmia.....						
15	Other Zymotic Diseases.....						
PARASITIC.		PARASITIQUES.					
16	Thrush.....						
17	Worms and other Parasites..						
DIETIC.		DIÉTIQUES.					
18	Privation of Food.....						
19	Scourvy.....						
20	Alcoholism.....						
CONSTITUTIONAL.		CONSTITUTIONNELLES.					
21	Rheumatism.....	1	2	3		1	2
22	Purpura.....						
23	Anæmia.....						
24	Cancer.....	2	2	4	3	1	
25	Scrofula and other forms of Tuberculosis.....						
26	Phthisis.....	9	10	19	9		10
27	Hydrocephalus.....						
28	Other Constitutional Diseases.						
DEVELOPMENTAL.		D'ÂGES.					
29	Premature Birth.....						
30	Cyanosis.....						
31	Malformations.....						
32	At Birth.....						
33	Child Birth.....		1	1	1		
34	Old Age.....	4	5	9	5	4	
35	Other Developmental.....						

TABLE I.

CITY OF CHATHAM, ONT.

Continued.

		SEXES.			CIVIL CONDITIONS. — ÉTATS CIVILS.		
DISEASES OR OTHER CAUSES OF DEATH. — MALADIES OU AUTRES CAUSES DE DÉCÈS.		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
		—	—	—	—	—	—
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Veu- vage.	Non- ma- riés.
LOCAL.	LOCALES.						
36 Cerebro Spinal Affections....	Affections cérébro-spinales....	5	3	8	1		7
37 Apoplexy	Apoplexie.....	1		1		1	
38 Paralysis.....	Paralysie.....	3	2	5	4	1	
39 Insanity.....	Folie.....						
40 Epilepsy and Convulsions....	Epilepsie et convulsions.....	5	2	7			7
41 Heart and Blood Vessels Disea- ses.....	Maladies du cœur et des vais- seaux sanguins.....	1	3	4	2	1	1
42 Lung diseases	Affections pulmonaires.....	8	3	11	2	1	8
43 Quinsy.....	Angine.....						
44 Throat Affections.....	Affections de la gorge.....	1	2	3			3
45 Stomach diseases.....	Maladies de l'estomac.....	1		1	1		
46 Enteritis and other Affections of the Bowels.....	Entérites et autres maladies d'intestins.....	2		2			2
47 Peritonitis.....	Péritonite.....						
48 Liver diseases.....	Maladies du foie.....						
49 Spleen diseases.....	Maladies de la rate.....						
50 Dentition.....	Dentition.....	1	1	2			2
51 Diseases of the Urinary organs	Maladies des voies Urinaires.	5	1	6	3	1	2
52 Diseases of the Uterus.....	Maladies de l'uterus.....						
53 Carbuncle.....	Anthrax.....						
54 Synovitis.....	Synovitis.....						
55 Joint diseases.....	Maladies des articulations.....						
56 Skin diseases.....	Maladies de la peau.....						
57 Other local diseases.....	Autres affections locales.....						
VIOLENT.	VIOLENTES.						
58 Fractures and contusions.....	Fractures et contusions.....						
59 Gunshot and wounds.....	Blessures et armes à feu.....						
60 Burns and Scalds.....	Brûlures.....						
61 Poison.....	Empoisonnements.....						
62 Drowning.....	Noyades.....						
63 Suffocation.....	Suffocation.....						
64 Railway accidents.....	Accidents par les ch. de fer.....						
65 Other accidents.....	Autres accidents.....						
66 Infanticide.....	Infanticide.....						
67 Suicide.....	Suicide.....						
68 Homicide.....	Homicide.....						
69 Hanged (Judicial).....	Exécutions de haute justice.....						
ILL-DEFINED AND NOT SPECIFIED CAUSES.	CAUSES INDÉFINIES ET NON SPÉCIFIÉES.						
70 Dropsy.....	Hydropisie.....						
71 Abscess.....	Abcès.....						
72 Hemorrhage.....	Hémorrhagie.....	1		1			1
73 Atrophy and Debility.....	Atrophie et débilité.....	5	3	8	1		7
74 Sudden (Unascertained).....	Subite causes inconnues.....						
75 Not specified and ill-defined..	Non spécifiées et indéfinies.....	2		2			2
Totals.....	Totaux.....	71	54	125	37	13	75

TABLEAU I.		CITÉ DE CHATHAM, ONT.																Suite.	
		A G E S.																	
Still-Born.	—	Un-der 1 year.	1 to 2.	2 to 3.	3 to 4.	4 to 5.	Total under 5.	5 to 10.	10 to 15.	15 to 20.	20 to 25.	25 to 35.	35 to 45.	45 to 55.	55 to 65.	65 to 75.	75 and over.	Not given.	
Morts nés.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	Au-des-sous de 1 an.	1 à 2.	2 à 3.	3 à 4.	4 à 5.	Total au-des-sous de 5.	5 à 10.	10 à 15.	15 à 20.	20 à 25.	25 à 35.	35 à 45.	45 à 55.	55 à 65.	65 à 75.	75 et plus.	Non don-nés.		
	2	1		1		4	2		1		1				1			36	
												1			3	1		37	
																		38	
	5		1		1	7												39	
																		40	
																		41	
	3	1	3			7			1			1		1	1	1		42	
				2	1	3												43	
															1			44	
																		45	
	1					1			1									46	
																		47	
																		48	
		2				2												49	
					1	1				1	1	2				1		50	
																		51	
																		52	
																		53	
																		54	
																		55	
																		56	
																		57	
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																		64	
																		65	
																		66	
																		67	
																		68	
																		69	
																		70	
																		71	
	6					6	1							1	1			72	
																		73	
	1					1											1	74	
																		75	
4	25	4	8	3	6	46	9	1	7	4	11	8	4	9	13	13			

TABLE I.

CITY OF BROCKVILLE.

DISEASES OR OTHER CAUSES OF DEATH. — MALADIES OU AUTRES CAUSES DE DÉCÈS.		SEXES.			CIVIL CONDITIONS. — ÉTATS CIVILS.		
		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Ve- u- vage.	Non- ma- riés.
ZYMOTIC.	ZYMOTIQUES.						
1 Small-Pox	Variole						
2 Measles	Rougeole						
3 Scarlet Fever	Fièvre scarlatine		3	3			3
4 Diphtheria	Diphthérie						
5 Catarrhal Affections	Affections catharrales						
6 Typhus, Enteric or Typhoid and continued fevers	Typhus, fièvres typhoïdes et fièvres continues	1	2	3	2		1
7 Whooping Cough	Coqueluche						
8 Diarrhœal Affections	Diarrhées	2	4	6	1		5
9 Remittent Fever	Fièvre remittente						
10 Other Malarial Diseases	Malaria						
11 Syphilis	Syphilis						
12 Erysipelas	Erysipèle		1	1	1		
13 Puerperal Fever	Fièvres puerpérales		1	1	1		
14 Septicæmia	Septicémie	1		1			1
15 Other Zymotic Diseases	Autres maladies zymotiques						
PARASITIC.	PARASITIQUES						
16 Thrush	Aphthes						
17 Worms and other Parasites	Vers et autres parasites						
DIETIC.	DIÉTIQUES.						
18 Privation of Food	Défaut d'alimentation						
19 Scurvy	Scorbut						
20 Alcoholism	Ivrognerie						
CONSTITUTIONAL.	CONSTITUTIONNELLES.						
21 Rheumatism	Rhumatisme						
22 Purpura	Purpura						
23 Anæmia	Anémie						
24 Cancer	Cancer	1	5	6	3	2	1
25 Scrofula and other forms of Tuberculosis	Scrofules et autres formes de Tubercule						
26 Phthisis	Phthisie	6	7	13	4	1	8
27 Hydrocephalus	Hydrocéphalie						
28 Other Constitutional Diseases	Autres mal. constitutionnelles						
DEVELOPMENTAL.	D'ÂGES.						
29 Premature Birth	Naissance prématurée						
30 Cyanosis	Cyanosis						
31 Malformations	Difformités						
32 At Birth	A la naissance						
33 Child Birth	Accouchement						
34 Old Age	Vieillesse	5	5	10	3	7	
35 Other Developmental	Autres maladies d'âges						

TABLE I.

CITY OF BROCKVILLE.

Continued.

DISEASES OR OTHER CAUSES OF DEATH. — MALADIES OU AUTRES CAUSES DE DÉCÈS.		SEXES.			CIVIL CONDITIONS. ÉTATS CIVILS.		
		Males	Females	Totals	Married	Widowed	Single
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Veuv- age.	Non- ma- riés.
LOCAL.	LOCALES.						
36 Cerebro Spinal Affections	Affections cérébro-spinales	3		3			3
37 Apoplexy	Apoplexie	3	2	5	4	1	
38 Paralysis	Paralysie	1	3	4	2	2	
39 Insanity	Folie						
40 Epilepsy and Convulsions	Epilepsie et convulsions	6	2	8			8
41 Heart and Blood Vessels Diseases	Maladies du cœur et des vais- seaux sanguins	4	3	7	6	1	
42 Lung diseases	Affections pulmonaires	7	5	12	4	1	7
43 Quinsy	Angine						
44 Throat Affections	Affections de la gorge	1		1			1
45 Stomach diseases	Maladies de l'estomac		1	1	1		
46 Enteritis and other Affections of the Bowels	Entérites et autres maladies d'intestins	2		2	1		1
47 Peritonitis	Péritonite						
48 Liver diseases	Maladies du foie						
49 Spleen diseases	Maladies de la rate						
50 Dentition	Dentition						
51 Diseases of the Urinary organs . .	Maladies des voies urinaires . .	2	2	4	3		1
52 Diseases of the Uterus	Maladies de l'utérus		1	1	1		
53 Carbuncle	Anthrax						
54 Synovitis	Synovitis						
55 Joint diseases	Maladies des articulations . .						
56 Skin diseases	Maladies de la peau						
57 Other local diseases	Autres affections locales						
VIOLENT.	VIOLENTES.						
58 Fractures and contusions	Fractures et contusions	3		3	2		1
59 Gunshot and wounds	Blessures et armes à feu	1		1			1
60 Burns and Scalds	Brûlures						
61 Poison	Empoisonnements						
62 Drowning	Noyades	1	1	2			2
63 Suffocation	Suffocation						
64 Railway accidents	Accidents par les ch. de fer . .	1		1	1		
65 Other accidents	Autres accidents		1	1	1		
66 Infanticide	Infanticide						
67 Suicide	Suicide						
68 Homicide	Homicide						
69 Hanged (Judicial)	Exécutions de haute justice . .						
ILL-DEFINED AND NOT SPECIFIED CAUSES.	CAUSES INDÉFINIES ET NON SPÉCIFIÉES.						
70 Dropsy	Hydropisie	1	3	4	3		1
71 Abscess	Abscès						
72 Hemorrhage	Hémorrhagie		1	1			1
73 Atrophy and Debility	Atrophie et débilité	1		1			1
74 Sudden (Unascertained)	Subite—causes inconnues						
75 Not specified and ill-defined . . .	Non spécifiées et indéfinies . .		1	1			1
Totals	Totaux	53	54	107	44	15	48

TABLEAU I.		CITÉ DE BROCKVILLE.														Suite.		
Still-Born.	Morts nés.	A G E S.														Not given.		
		Un-der 1 year.	1 to 2.	2 to 3.	3 to 4.	4 to 5.	Total under 5.	5 to 10.	10 to 15.	15 to 20.	20 to 25.	25 to 35.	35 to 45.	45 to 55.	55 to 65.		65 to 75.	75 and over.
		Au-des-sous de 1 an.	1 à 2.	2 à 3.	3 à 4.	4 à 5.	Total au-des-sous de 5.	5 à 10.	10 à 15.	15 à 20.	20 à 25.	25 à 35.	35 à 45.	45 à 55.	55 à 65.		65 à 75.	75 et plus.
		2					2	1				2	1		2	2		
		6	1				7	1										
		2	4				6				1	1	2	2		1		
		1					1					1						
										1				1				
		1					1					1	1	1				
		1					1		1			1			1			
								2										
											1							

TABLE I.

TOWN OF WOODSTOCK, ONT.

		SEXES.			CIVIL CONDITIONS. ÉTATS CIVILS.		
DISEASES OR OTHER CAUSES OF DEATH. — MALADIES OU AUTRES CAUSES DE DÉCÈS.		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Veu- vage.	Non- ma- riés.
	ZYMOTIC.						
1	Small-Pox						
2	Measles						
3	Scarlet Fever						
4	Diphtheria						
5	Catarrhal Affections		1	1			1
6	Typhus, Enteric or Typhoid and continued fevers.....	2	2	4	2		2
7	Whooping Cough						
8	Diarrhœal Affections.....	3	1	4			4
9	Remittent Fever.....						
10	Other Malarial Diseases						
11	Syphilis.....						
12	Erysipelas.....						
13	Puerperal Fever						
14	Septicæmia		1	1	1		
15	Other Zymotic Diseases						
	PARASITIC.						
16	Thrush						
17	Worms and other Parasites...						
	DIETIC.						
18	Privation of Food						
19	Scurvy						
20	Alcoholism						
	CONSTITUTIONAL.						
21	Rheumatism						
22	Purpura						
23	Anæmia						
24	Cancer						
25	Scrofula and other forms of Tuberculosis.....						
26	Phthisis	5	4	9	3		6
27	Hydrocephalus.....	1		1			1
28	Other Constitutional Diseases.						
	DEVELOPMENTAL.						
29	Premature Birth	1	1	2			2
30	Cyanosis.....						
31	Malformations.....						
32	At Birth						
33	Child Birth.....		1	1	1		
34	Old Age	3	5	8	2	5	1
35	Other Developmental						

TABLE I.

TOWN OF WOODSTOCK, ONT.

Continued.

DISEASES OR OTHER CAUSES OF DEATH. MALADIES OU AUTRES CAUSES DE DÉCÈS.		SEXES.			CIVIL CONDITIONS. ÉTATS CIVILS.		
		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
		Hom- mes.	Fem- mes.	To- taux.	Mar- riés.	Veuv- vage.	Non- ma- riés.
LOCAL.	LOCALES.						
36 Cerebro Spinal Affections . . .	Affections cérébro-spinales . . .	1	2	3	2	...	1
37 Apoplexy	Apoplexie	1	1	2	1	...	1
38 Paralysis	Paralyse	1	1	2	2	...	...
39 Insanity	Folie . . . . .	...	...	...	...	...	...
40 Epilepsy and Convulsions . . .	Epilepsie et convulsions . . .	4	1	5	...	...	5
41 Heart and Blood Vessels Disea- ses	Maladies du cœur et des vais- seaux sanguins	3	3	6	2	2	2
42 Lung diseases	Affections pulmonaires . . .	5	6	11	3	4	4
43 Quinsy	Angine . . . . .	...	...	...	...	...	...
44 Throat Affections	Affections de la gorge . . .	...	...	...	...	...	...
45 Stomach diseases	Maladies de l'estomac . . .	1	2	3	1	...	2
46 Enteritis and other Affections of the Bowels	Entérites et autres maladies d'intestins . . . . .	...	1	1	...	...	1
47 Peritonitis	Péritonite . . . . .	...	...	...	...	...	...
48 Liver diseases	Maladies du foie . . . . .	...	2	2	1	...	1
49 Spleen diseases	Maladies de la rate . . . . .	...	...	...	...	...	...
50 Dentition	Dentition . . . . .	...	...	...	...	...	...
51 Diseases of the Urinary organs	Maladies des voies urinaires . .	2	...	2	...	1	1
52 Diseases of the Uterus	Maladies de l'utérus . . . . .	...	...	...	...	...	...
53 Carbuncle	Anthrax . . . . .	...	...	...	...	...	...
54 Synovitis	Synovitis . . . . .	...	...	...	...	...	...
55 Joint diseases	Maladies des articulations . .	...	...	...	...	...	...
56 Skin diseases	Maladies de la peau . . . . .	...	...	...	...	...	...
57 Other local diseases	Autres affections locales . . .	...	...	...	...	...	...
VIOLENT.	VIOLENTES.						
58 Fractures and contusions . . .	Fractures et contusions . . .	1	...	1	1	...	...
59 Gunshot and wounds	Blessures et armes à feu . . .	...	...	...	...	...	...
60 Burns and Scalds	Brûlures . . . . .	...	...	...	...	...	...
61 Poison	Empoisonnements . . . . .	...	...	...	...	...	...
62 Drowning	Noyades . . . . .	...	...	...	...	...	...
63 Suffocation	Suffocation	1	...	1	...	...	1
64 Railway accidents	Accidents par les ch. de fer . .	...	...	...	...	...	...
65 Other accidents	Autres accidents	1	...	1	...	...	1
66 Infanticide	Infanticide . . . . .	...	...	...	...	...	...
67 Suicide	Suicide . . . . .	...	...	...	...	...	...
68 Homicide	Homicide . . . . .	...	...	...	...	...	...
69 Hanged (Judicial)	Exécutions de haute justice . .	...	...	...	...	...	...
ILL-DEFINED AND NOT SPECIFIED CAUSES.	CAUSES INDÉFINIES ET NON SPÉCIFIÉES.						
70 Dropsy	Hydropisie . . . . .	...	1	1	...	1	...
71 Abscess	Abcès . . . . .	...	...	...	...	...	...
72 Hemorrhage	Hémorrhagie . . . . .	...	1	1	...	...	1
73 Atrophy and Debility	Atrophie et débilité	1	...	1	...	...	1
74 Sudden (Unascertained)	Subite—causes inconnues . . .	...	...	...	...	...	...
75 Not specified and ill-defined . .	Non spécifiées et indéfinies . .	1	...	1	1	...	...
Totals	Totaux	38	37	75	23	13	39

TABLEAU I.		VILLE DE WOODSTOCK, ONT.														Suite.		
Still-Born.	AGES.																Morts nés.	
	Under 1 year.	1 to 2.	2 to 3.	3 to 4.	4 to 5.	Total under 5.	5 to 10.	10 to 15.	15 to 20.	20 to 25.	25 to 35.	35 to 45.	45 to 55.	55 to 65.	65 to 75.	75 and over.		Not given.
	Au-dessous de 1 an.	1 à 2.	2 à 3.	3 à 4.	4 à 5.	Total au-dessous de 5.	5 à 10.	10 à 15.	15 à 20.	20 à 25.	25 à 35.	35 à 45.	45 à 55.	55 à 65.	65 à 75.	75 et plus.		Non don- nés.
	1					1				1			1	1				
													1		1			
	4					4	1											
	2					2					1			1	2			
	2	2				4					2		2		2	1		
	2					2					1							
									1									
	1					1								1				
								1							1			

TABLE I.

CITY OF THREE RIVERS.

DISEASES OR OTHER CAUSES OF DEATH. — MALADIES OU AUTRES CAUSES DE DÉCÈS.		SEXES.			CIVIL CONDITIONS. — ÉTATS CIVILS.		
		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Veu- vage.	Non- ma- riés.
ZYMOTIC.		ZYMOTIQUES.					
1	Small-Pox						
2	Measles			3			3
3	Scarlet Fever						
4	Diphtheria			2			7
5	Catarrhal Affections			10		3	19
6	Typhus, Enteric or Typhoid and continued fevers.....			2		3	2
7	Whooping Cough.....			4			8
8	Diarrhœal Affections.....			13			26
9	Remittent Fever.....						
10	Other Malarial Diseases						
11	Syphilis						
12	Erysipelas.....			1			1
13	Puerperal Fever					1	
14	Septicæmia						
15	Other Zymotic Diseases.....						
PARASITIC.		PARASITIQUES.					
16	Thrush						
17	Worms and other Parasites...						
DIETIC.		DIÉTIQUES.					
18	Privation of Food						
19	Scurvy						
20	Alcoholism						
CONSTITUTIONAL.		CONSTITUTIONNELLES.					
21	Rheumatism						
22	Purpura						
23	Anæmia			15		6	26
24	Cancer			3		3	
25	Scrofula and other forms of Tuberculosis.....						
26	Phthisis			12		11	12
27	Hydrocephalus			1		2	2
28	Other Constitutional Diseases.			2		1	1
DEVELOPMENTAL.		D'ÂGES.					
29	Premature Birth.....			11		5	16
30	Cyanosis						
31	Malformations						
32	At Birth						
33	Child Birth.....						
34	Old Age.....			10		6	16
35	Other Developmental					15	1

TABLEAU I.		CITÉ DE TROIS RIVIÈRES.															
		A G E S.															
Still-Born.	Un-der 1 year.	1 to 2.	2 to 3.	3 to 4.	4 to 5.	Total under 5.	5 to 10.	10 to 15.	15 to 20.	20 to 25.	25 to 35.	35 to 45.	45 to 55.	55 to 65.	65 to 75.	75 and over.	Not given.
Morts-nés.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Au-des-sous de 1 an.	1 à 2.	2 à 3.	3 à 4.	4 à 5.	Total au-des-sous de 5.	5 à 10.	10 à 15.	15 à 20.	20 à 25.	25 à 35.	35 à 45.	45 à 55.	55 à 65.	65 à 75.	75 et plus.	Non don-nés.
	1			1		2	1										
						6	1										
	7	3	1	2	2	17	1						3		1		
	2					2				1	2						
	5		2		1	8											
	25				1	26											
					</												

TABLE I.

CITY OF THREE RIVERS.

Continued.

DISEASES OR OTHER CAUSES OF DEATH. — MALADIES OU AUTRES CAUSES DE DÉCÈS.		SEXES.			CIVIL CONDITIONS. ÉTATS CIVILS.		
		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
		— Hom- mes.	— Fem- mes.	— To- taux.	— Ma- riés.	— Veu- vage.	— Non- ma- riés.
LOCAL.	LOCALES.						
36 Cerebro Spinal Affections.	Affections cérébro-spinales.	7	5	12	1		11
37 Apoplexy.	Apoplexie.		1	1	1		
38 Paralysis.	Paralysie.	5	3	8	7		1
39 Insanity.	Folie.	1		1	1		
40 Epilepsy and Convulsions.	Epilepsie et convulsions.	4	7	11			11
41 Heart and Blood Vessels Disea- ses.	Maladies du cœur et des vais- seaux sanguins.	4	5	9	8		1
42 Lung diseases.	Affections pulmonaires.	7	6	13	6		7
43 Quinsy.	Angine.						
44 Throat Affections.	Affections de la gorge.	2	2	4	1		3
45 Stomach diseases.	Maladies de l'estomac.	3	5	8			8
46 Enteritis and other Affections of the Bowels.	Entérites et autres maladies d'intestins.	1	4	5	1		4
47 Peritonitis.	Péritonite.						
48 Liver diseases.	Maladies du foie.	1		1	1		
49 Spleen diseases.	Maladies de la rate.						
50 Dentition.	Dentition.	13	9	22			22
51 Diseases of the Urinary organs	Maladies des voies urinaires.	1		1			1
52 Diseases of the Uterus.	Maladies de l'utérus.						
53 Carbuncle.	Anthrax.						
54 Synovitis.	Synovitis.						
55 Joint diseases.	Maladies des articulations.						
56 Skin diseases.	Maladies de la peau.	2		2	1		1
57 Other local diseases.	Autres affections locales.						
VIOLENT.	VIOLENTES.						
58 Fractures and contusions.	Fractures et contusions.						
59 Gunshot and wounds.	Blessures et armes à feu.						
60 Burns and Scalds.	Brûlures.	1		1			1
61 Poison.	Empoisonnements.						
62 Drowning.	Noyades.	1		1			1
63 Suffocation.	Suffocation.						
64 Railway accidents.	Accidents par les ch. de fer.						
65 Other accidents.	Autres accidents.	2		2	1		1
66 Infanticide.	Infanticide.						
67 Suicide.	Suicide.						
68 Homicide.	Homicide.						
69 Hanged (Judicial).	Exécutions de haute justice.						
ILL-DEFINED AND NOT SPECIFIED CAUSES.	CAUSES INDÉFINIES ET NON SPÉCIFIÉES.						
70 Dropsy.	Hydropisie.	2	1	3	2		1
71 Abscess.	Abcès.						
72 Hemorrhage.	Hémorrhagie.		1	1	1		
73 Atrophy and Debility.	Atrophie et débilité.		3	3	1		2
74 Sudden (Unascertained).	Subite—causes inconnues.						
75 Not specified and ill-defined.	Non spécifiées et indéfinies.	1	5	6			6
Totals.	Totaux.	147	135	282	76		206

TABLEAU I.		CITÉ DE TROIS RIVIÈRES.															Suite.	
		A G E S.																
Still Born.	—	Un-der 1 year.	1 to 2.	2 to 3.	3 to 4.	4 to 5.	Total under 5.	5 to 10.	10 to 15.	15 to 20.	20 to 25.	25 to 35.	35 to 45.	45 to 55.	55 to 65.	65 to 75.	75 and over.	Not given.
Morts nés.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Au-des-sous de 1 an.	1 à 2.	2 à 3.	3 à 4.	4 à 5.	Total au-des-sous de 5.	5 à 10.	10 à 15.	15 à 20.	20 à 25.	25 à 35.	35 à 45.	45 à 55.	55 à 65.	65 à 75.	75 et plus.	Non don-nés.	
		5		1		1	7	2	2			1			1			
												1			1	2	5	
	6		3		1		10					1						
		1				1	2	1				3	2	1	2	3	2	
		2		1			3								1			
	6			1			7				1							
		1			1		2	1		1			1					
																1		
	16		6				22											
					1		1											
	1						1					1						
				1			1											
												1						
		1					1									1		

TABLE I.

TOWN OF GALT.

DISEASES OR OTHER CAUSES OF DEATH. — MALADIES OU AUTRES CAUSES DE DÉCÈS.		SEXES.			CIVIL CONDITIONS. — ÉTATS CIVILS.		
		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
		—	—	—	—	—	—
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Veu- vage.	Non- ma- riés.
1	ZYMOTIC.						
2	Small-Pox.....						
3	Measles.....						
4	Scarlet Fever.....						
5	Diphtheria.....		1	1			1
6	Catarrhal Affections.....	2		2	1		1
7	Typhus, Enteric or Typhoid and continued fevers.....	1	1	2	1	1	
8	Whooping Cough.....	1		1			1
9	Diarrhœal Affections.....	2	3	5	2		3
10	Remittent Fever.....						
	Other Malarial Diseases.....		1	1			1
11	Syphilis.....						
12	Erysipelas.....						
13	Puerperal Fever.....						
14	Septicæmia.....						
15	Other Zymotic Diseases.....						
	PARASITIC.						
16	Thrush.....						
17	Worms and other Parasites.....						
	DIETIC.						
18	Privation of Food.....						
19	Scurvy.....						
20	Alcoholism.....						
	CONSTITUTIONAL.						
21	Rheumatism.....		1	1			1
22	Purpura.....						
23	Anæmia.....		1	1			1
24	Cancer.....	2	4	6	3	1	2
25	Scrofula and other forms of Tuberculosis.....						
26	Phthisis.....	7	3	10	3		7
27	Hydrocephalus.....	1		1			1
28	Other Constitutional Diseases.....		1	1			1
	DEVELOPMENTAL.						
29	Premature Birth.....						
30	Cyanosis.....						
31	Malformations.....						
32	At Birth.....						
33	Child Birth.....		1	1			1
34	Old Age.....	3	7	10	2	6	2
35	Other Developmental.....						

TABLE I.

TOWN OF GALT.

Continued.

		SEXES.			CIVIL CONDITIONS. — ÉTATS CIVILS.		
DISEASES OR OTHER CAUSES OF DEATH.		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
MALADIES OU AUTRES CAUSES DE DÉCÈS.							
		—	—	—	—	—	—
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Veu- vage.	Non- ma- riés.
LOCAL.	LOCALES.						
36 Cerebro Spinal Affections.....	Affections cérébro-spinales.....	4	1	5			5
37 Apoplexy.....	Apoplexie.....	2	1	3	3		
38 Paralysis.....	Paralysie.....						
39 Insanity.....	Folie.....						
40 Epilepsy and Convulsions.....	Epilepsie et convulsions.....	1	2	3	1	1	1
41 Heart and Blood Vessels Disea- ses.....	Maladies du cœur et des vais- seaux sanguins.....	9	4	13	6	5	2
42 Lung diseases.....	Affections pulmonaires.....	9	7	16	7		9
43 Quinsy.....	Angine.....						
44 Throat Affections.....	Affections de la gorge.....	2	1	3			3
45 Stomach diseases.....	Maladies de l'estomac.....						
46 Enteritis and other Affections of the Bowels.....	Entérites et autres maladies d'intestins.....		1	1	1		
47 Peritonitis.....	Péritonite.....						
48 Liver diseases.....	Maladies du foie.....		1	1		1	
49 Spleen diseases.....	Maladies de la rate.....						
50 Dentition.....	Dentition.....						
51 Diseases of the Urinary organs	Maladies des voies urinaires..	4	3	7	6		1
52 Diseases of the Uterus.....	Maladies de l'utérus.....						
53 Carbuncle.....	Anthrax.....						
54 Synovitis.....	Synovitis.....						
55 Joint diseases.....	Maladies des articulations....	1		1	1		
56 Skin diseases.....	Maladies de la peau.....						
57 Other local diseases.....	Autres affections locales.....						
VIOLENT.	VIOLENTES.						
58 Fractures and contusions.....	Fractures et contusions.....						
59 Gunshot and wounds.....	Blessures et armes à feu.....						
60 Burns and Scalds.....	Brûlures.....	1		1			1
61 Poison.....	Empoisonnements.....						
62 Drowning.....	Noyades.....						
63 Suffocation.....	Suffocation.....						
64 Railway accidents.....	Accidents par les ch. de fer.....						
65 Other accidents.....	Autres accidents.....	1		1			1
66 Infanticide.....	Infanticide.....						
67 Suicide.....	Suicide.....	2	1	3	2		1
68 Homicide.....	Homicide.....						
69 Hanged (Judicial).....	Exécutions de haute justice.....						
ILL-DEFINED AND NOT SPECIFIED CAUSES.	CAUSES IN DÉFINIES ET NON SPÉCIFIÉES.						
70 Dropsy.....	Hydropisie.....		2	2		1	1
71 Abscess.....	Abcès.....		1	1	1		
72 Hemorrhage.....	Hémorrhagie.....						
73 Atrophy and Debility.....	Atrophie et débilité.....	1		1	1		
74 Sudden (Unascertained).....	Subite—causes inconnues.....						
75 Not specified and ill-defined..	Non spécifiées et indéfinies.....	1	2	3	1	1	1
Totals.....	Totaux.....	58	50	108	42	17	49

TABLEAU I.		VILLE DE GALT.															Suite.	
Still-Born.	Morts nés.	AGES.																
		Un-der 1 year.	1 to 2.	2 to 3.	3 to 4.	4 to 5.	Total under 5.	5 to 10.	10 to 15.	15 to 20.	20 to 25.	25 to 35.	35 to 45.	45 to 55.	55 to 65.	65 to 75.	75 and over.	Not given.
		Au-des-sous de 1 an.	1 à 2.	2 à 3.	3 à 4.	4 à 5.	Total au-des-sous de 5.	5 à 10.	10 à 15.	15 à 20.	20 à 25.	25 à 35.	35 à 45.	45 à 55.	55 à 65.	65 à 75.	75 et plus.	Non don-nés.
		1					1	2	1	1								36
																1	2	37
																		38
		1					1				1	1						39
																		40
		1					1					3		2	3	3	1	41
		6	2				8					2	2		1	2	1	42
																		43
						1	1	2										44
																		45
											1							46
																		47
																1		48
																		49
										1								50
												1	1		2	1	1	51
																		52
																		53
																		54
																1		55
																		56
																		57
																		58
																		59
			1				1											60
																		61
																		62
																		63
																		64
										1								65
																		66
										1			1			1		67
																		68
																		69
											1					1		70
														1				71
																	1	72
																		73
		1					1								1	1		74
																		75
6	17	3	.....	1	1	22	5	3	6	6	10	5	5	5	13	18	15	...

TABLE I.

CITY OF ST. HYACINTHE.

DISEASES OR OTHER CAUSES OF DEATH. — MALADIES OU AUTRES CAUSES DE DÉCÈS.		SEXES.			CIVIL CONDITIONS. — ÉTATS CIVILS.		
		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
		—	—	—	—	—	—
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Ve- u- vage.	Non- ma- riés.
	ZYMOTIC.						
1	Small-Pox.....						
2	Measles.....						
3	Scarlet Fever.....						
4	Diphtheria.....						12
5	Catarrhal Affections.....						4
6	Typhus, Enteric or Typhoid and continued fevers.....						2
7	Whooping Cough.....						1
8	Diarrhœal Affections.....					2	10
9	Remittent Fever.....						
10	Other Malarial Diseases.....						
11	Syphilis.....						
12	Erysipelas.....	1		1			1
13	Puerperal Fever.....		1	1	1		
14	Septicæmia.....						
15	Other Zymotic Diseases.....						
	ZYMOTIQUES.						
16	Thrush.....						
	Worms and other Parasites.....						
	PARASITIC.						
	PARASITIQUES.						
18	Privation of Food.....						
19	Scurvy.....						
20	Alcoholism.....						
	DIETIC.						
	DIÉTÉTIQUES.						
21	Rheumatism.....						
22	Purpura.....						
23	Anæmia.....						
24	Cancer.....	2	3	5	4		1
25	Scrofula and other forms of Tuberculosis.....						
26	Phthisis.....	10	12	22	9	1	12
27	Hydrocephalus.....						
28	Other Constitutional Diseases.....	1		1	1		
	CONSTITUTIONAL.						
	CONSTITUTIONNELLES.						
29	Premature Birth.....						
30	Cyanosis.....						
31	Malformations.....						
32	At Birth.....						
33	Child Birth.....		1	1	1		
34	Old Age.....	5	12	17	6	8	3
35	Other Developmental.....						
	DEVELOPMENTAL.						
	D'ÂGES.						

TABLE I.

CITY OF ST. HYACINTHE.

Continued.

DISEASES OR OTHER CAUSES OF DEATH. — MALADIES OU AUTRES CAUSES DE DÉCÈS.		SEXES.			CIVIL CONDITIONS. — ÉTATS CIVILS.		
		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Veu- vage.	Non- ma- riés.
LOCAL.	LOCALES.						
36 Cerebro Spinal Affections	Affections cérébro-spinales....	9	4	13	2	.....	11
37 Apoplexy.....	Apoplexie.....	.....	1	1	1	.....	.....
38 Paralysis.....	Paralysie.....	2	2	4	3	.....	1
39 Insanity.....	Folie.....	.....	.....	.....	.....	.....	.....
40 Epilepsy and Convulsions	Epilepsie et convulsions.....	1	1	2	1	.....	1
41 Heart and Blood Vessels Disea- ses.....	Maladies du cœur et des vais- seaux sanguins.....	5	2	7	3	2	2
42 Lung diseases.....	Affections pulmonaires.....	7	9	16	4	5	7
43 Quinsy.....	Angine.....	.....	.....	.....	.....	.....	.....
44 Throat Affections.....	Affections de la gorge.....	.....	.....	.....	.....	.....	.....
45 Stomach diseases.....	Maladies de l'estomac.....	.....	.....	.....	.....	.....	.....
46 Enteritis and other Affections of the Bowels.....	Entérites et autres maladies d'intestins.....	2	1	3	.....	1	2
47 Peritonitis.....	Péritonite.....	.....	1	1	1	.....	.....
48 Liver diseases.....	Maladies du foie.....	1	.....	1	1	.....	.....
49 Spleen diseases.....	Maladies de la rate.....	.....	.....	.....	.....	.....	.....
50 Dentition.....	Dentition.....	7	4	11	.....	.....	11
51 Diseases of the Urinary organs	Maladies des voies urinaires..	3	2	5	3	.....	2
52 Diseases of the Uterus.....	Maladies de l'uterus.....	.....	2	2	.....	.....	2
53 Carbuncle.....	Anthrax.....	.....	.....	.....	.....	.....	.....
54 Synovitis.....	Synovitis.....	.....	.....	.....	.....	.....	.....
55 Joint diseases.....	Maladies des articulations.....	.....	.....	.....	.....	.....	.....
56 Skin diseases.....	Maladies de la peau.....	.....	.....	.....	.....	.....	.....
57 Other local diseases.....	Autres affections locales.....	.....	.....	.....	.....	.....	.....
VIOLENT.	VIOLENTES.						
58 Fractures and contusions.....	Fractures et contusions.....	.....	.....	.....	.....	.....	.....
59 Gunshot and wounds.....	Blessures et armes à feu.....	.....	.....	.....	.....	.....	.....
60 Burns and Scalds.....	Brûlures.....	.....	.....	.....	.....	.....	.....
61 Poison.....	Empoisonnements.....	.....	.....	.....	.....	.....	.....
62 Drowning.....	Noyades.....	1	.....	1	.....	.....	1
63 Suffocation.....	Suffocation.....	.....	1	1	.....	.....	1
64 Railway accidents.....	Accidents par les ch. de fer.....	.....	.....	.....	.....	.....	.....
65 Other accidents.....	Autres accidents.....	2	.....	2	2	.....	.....
66 Infanticide.....	Infanticide.....	.....	.....	.....	.....	.....	.....
67 Suicide.....	Suicide.....	.....	.....	.....	.....	.....	.....
68 Homicide.....	Homicide.....	.....	.....	.....	.....	.....	.....
69 Hanged (Judicial).....	Exécutions de haute justice.....	.....	.....	.....	.....	.....	.....
ILL-DEFINED AND NOT SPECIFIED CAUSES.	CAUSES INDÉFINIES ET NON SPÉCIFIÉES.						
70 Dropsy.....	Hydropisie.....	.....	1	1	1	.....	.....
71 Abscess.....	Abcès.....	.....	.....	.....	.....	.....	.....
72 Hemorrhage.....	Hémorrhagie.....	.....	.....	.....	.....	.....	.....
73 Atrophy and Debility.....	Atrophie et débilité.....	23	20	43	.....	1	42
74 Sudden (Unascertained).....	Subite—causes inconnues.....	.....	.....	.....	.....	.....	.....
75 Not specified and ill-defined..	Non spécifiées et indéfinies.....	.....	1	1	.....	.....	1
Totals.....	Totaux.....	96	98	194	44	20	130

TABLEAU I.		CITÉ DE ST. HYACINTHE.														Suite.		
		A G E S.																
Still-Born.	—	Un-der 1 year.	1 to 2.	2 to 3.	3 to 4.	4 to 5.	Total under 5.	5 to 10.	10 to 15.	15 to 20.	20 to 25.	25 to 35.	35 to 45.	45 to 55.	55 to 65.	65 to 75.	75 and over.	Not given.
Morts nés.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	An-des-sous de 1 an.	1 à 2.	2 à 3.	3 à 4.	4 à 5.	Total au-des-sous de 5.	5 à 10.	10 à 15.	15 à 20.	20 à 25.	25 à 35.	35 à 45.	45 à 55.	55 à 65.	65 à 75.	75 et plus.	Non don-nés.	
	5	1			2	8	1		1		1	1			1			36
								1							1			37
															3			38
	1					1						1						39
																		40
	2	1	1			4		1				1		1	2	4		41
																		42
																		43
																		44
																		45
		1				1						1				1		46
																1		47
																		48
	7	2	2			11												49
	1		1			2											3	50
																		51
														1		1		52
																		53
																		54
																		55
																		56
																		57
																		58
																		59
																		60
																		61
	1			1		1												62
						1												63
												1		1				64
																		65
																		66
																		67
																		68
																		69
													1					70
																		71
	37	1	1			39			1							2	1	72
																		73
				1		1												74
																		75
3	68	9	8	6	2	93	5	4	3	3	11	14	4	6	23	28		

TABLE I.

CITY OF SOREL.

DISEASES OR OTHER CAUSES OF DEATH. — MALADIES OU AUTRES CAUSES DE DÉCÈS.		SEXES.			CIVIL CONDITIONS. — ÉTATS CIVILS.		
		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
		—	—	—	—	—	—
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Veuv- vage.	Non- ma- riés.
	ZYMOTIC.						
	ZYMOTIQUES.						
1	Small-Pox						
2	Measles	5	7	12			12
3	Scarlet Fever						
4	Diphtheria						
5	Catarrhal Affections.	1		1			1
6	Typhus, Enteric or Typhoid and continued fevers.....		1	1			1
7	Whooping Cough	3	3	6			6
8	Diarrheal Affections.....	30	24	54			54
9	Remittent Fever.....						
10	Other Malarial Diseases						
11	Syphilis						
12	Erysipelas	1		1			1
13	Puerperal Fever.....		2	2	2		
14	Septicæmia.....						
15	Other Zymotic Diseases						
	PARASITIC.						
	PARASITIQUES.						
16	Thrush						
17	Worms and other Parasites...						
	DIETIC.						
	DIÉTITIQUES.						
18	Privation of Food						
19	Scurvy						
20	Alcoholism						
	CONSTITUTIONAL.						
	CONSTITUTIONNELLES.						
21	Rheumatism						
22	Purpura						
23	Anæmia						
24	Cancer	2	1	3	2	1	
25	Scrofula and other forms of Tuberculosis.....						
26	Phthisis	5	4	9	4	1	4
27	Hydrocephalus	3	4	7			7
28	Other Constitutional Diseases.	1		1	1		
	DEVELOPMENTAL.						
	D'ÂGES.						
29	Premature Birth.....						
30	Cyanosis						
31	Malformations						
32	At Birth						
33	Child Birth.....		1	1	1		
34	Old Age.....	1		1		1	
35	Other Developmental						

TABLE I.

CITY OF SOREL.

Continued.

DISEASES OR OTHER CAUSES OF DEATH. — MALADIES OU AUTRES CAUSES DE DÉCÈS.		SEXES.			CIVIL CONDITIONS. — ÉTATS CIVILS.		
		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
		Hom- mes.	Fem- mes.	To- taux.	Mar- riés.	Veu- vage.	Non- mar- riés.
LOCAL.	LOCALES.						
36 Cerebro Spinal Affections ...	Affections cérébro-spinales...	1	1	2			2
37 Apoplexy	Apoplexie		1	1			1
38 Paralysis	Paralyse	4	5	9	4	4	1
39 Insanity	Folie						
40 Epilepsy and Convulsions	Epilepsie et convulsions	2	2	4			4
41 Heart and Blood Vessels Diseases	Maladies du cœur et des vais- seaux sanguins	6	8	14	7	7	
42 Lung diseases	Affections pulmonaires	4	4	8	1	2	5
43 Quinsy	Angine						
44 Throat Affections	Affections de la gorge	3	5	8			8
45 Stomach diseases	Maladies de l'estomac	1		1	1		
46 Enteritis and other Affections of the Bowels	Entérites et autres maladies d'intestins	2	2	4	2	1	1
47 Peritonitis	Péritonite						
48 Liver diseases	Maladies du foie		1	1	1		
49 Spleen diseases	Maladies de la rate						
50 Dentition	Dentition	8	2	10			10
51 Diseases of the Urinary organs	Maladies des voies urinaires	1		1	1		
52 Diseases of the Uterus	Maladies de l'utérus						
53 Carbuncle	Anthrax						
54 Synovitis	Synovitis						
55 Joint diseases	Maladies des articulations		1	1	1		
56 Skin diseases	Maladies de la peau						
57 Other local diseases	Autres affections locales						
VIOLENT.	VIOLENTES.						
58 Fractures and contusions	Fractures et contusions						
59 Gunshot and wounds	Blessures et armes à feu						
60 Burns and Scalds	Brûlures						
61 Poison	Empoisonnements						
62 Drowning	Noyades	1		1			1
63 Suffocation	Suffocation						
64 Railway accidents	Accidents par les ch. de fer						
65 Other accidents	Autres accidents	1	1	2	2		
66 Infanticide	Infanticide						
67 Suicide	Suicide						
68 Homicide	Homicide						
69 Hanged (Judicial)	Exécutions de haute justice						
ILL-DEFINED AND NOT SPECIFIED CAUSES.	CAUSES INDÉFINIES ET NON SPÉCIFIÉES.						
70 Dropsy	Hydropisie						
71 Abscess	Abcès						
72 Hemorrhage	Hémorrhagie						
73 Atrophy and Debility	Atrophie et débilité	11	17	28	3	5	20
74 Sudden (Unascertained)	Subites causes inconnues						
75 Not specified and ill-defined	Non-spécifiées et indéfinies						
Totals	Totaux	97	97	194	33	22	139

TABLEAU I.						CITÉ DE SOREL.														Suite.	
Still-Born.	AGES.																Not given.				
	Under 1 year.	1 to 2.	2 to 3.	3 to 4.	4 to 5.	Total under 5.	5 to 10.	10 to 15.	15 to 20.	20 to 25.	25 to 35.	35 to 45.	45 to 55.	55 to 65.	65 to 75.	75 and over.					
	Morts nés.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					
	Au-des-sous de 1 an.	1 à 2.	2 à 3.	3 à 4.	4 à 5.	Total au-des-sous de 5.	5 à 10.	10 à 15.	15 à 20.	20 à 25.	25 à 35.	35 à 45.	45 à 55.	55 à 65.	65 à 75.	75 et plus.	Non don-nés.				
	1	1				2															
			1			1							1	1	2	1					
	1	1	1	1		4										4					
											2		2	2	3	5					
	1	2				3									5						
	1	1	1	1	1	5	3									1					
					1	1									2	1					
															1						
	5	5				10															
															1						
															1						

TABLE I.

CITY OF FREDERICTON.

DISEASES OR OTHER CAUSES OF DEATH. — MALADIES OU AUTRES CAUSES DE DÉCÈS.		SEXES.			CIVIL CONDITIONS. — ÉTATS CIVILS.		
		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Ve- uve.	Non- ma- riés.
ZYMOTIC.	ZYMOTIQUES.						
1 Small-Pox.....	Variole.....						
2 Measles.....	Rougeole.....						
3 Scarlet Fever.....	Fièvre scarlatine.....						
4 Diphtheria.....	Diphthérie.....		2	2			2
5 Catarrhal Affections.....	Affections catharrales.....	8	7	15	6	2	7
6 Typhus, Enteric or Typhoid and continued fevers.....	Typhus, fièvres typhoïdes et fièvres continues.....						
7 Whooping Cough.....	Coqueluche.....		1	1			1
8 Diarrhœal Affections.....	Diarrhées.....	1	4	5			5
9 Remittent Fever.....	Fièvre remittente.....						
10 Other Malarial Diseases.....	Malaria.....						
11 Syphilis.....	Syphilis.....						
12 Erysipelas.....	Erysipèle.....						
13 Puerperal Fever.....	Fièvres puerpérales.....		1	1	1		
14 Septicæmia.....	Septicémie.....		1	1	1		
15 Other Zymotic Diseases.....	Autres maladies zymotiques.....						
PARASITIC.	PARASITIQUES.						
16 Thrush.....	Aphthes.....						
17 Worms and other Parasites...	Vers et autres parasites.....						
DIETIC.	DIÉTITIQUES.						
18 Privation of Food.....	Défaut d'alimentation.....						
19 Scurvy.....	Scorbut.....						
20 Alcoholism.....	Ivrognerie.....						
CONSTITUTIONAL.	CONSTITUTIONNELLES.						
21 Rheumatism.....	Rhumatisme.....	1	1	2	1		1
22 Purpura.....	Purpura.....						
23 Anæmia.....	Anémie.....			5	5	4	1
24 Cancer.....	Cancer.....						
25 Scrofula and other forms of Tuberculosis.....	Scrofules et autres formes de Tubercule.....						
26 Phthisis.....	Phthisie.....	7	8	15	4		11
27 Hydrocephalus.....	Hydrocéphalie.....	1	2	3			3
28 Other Constitutional Diseases.	Autres mal. constitutionnelles.						
DEVELOPMENTAL.	•D'AGES.						
29 Premature Birth.....	Naissance prématurée.....						
30 Cyanosis.....	Cyanosis.....		1	1			1
31 Malformations.....	Difformités.....						
32 At Birth.....	A la naissance.....						
33 Child Birth.....	Accouchement.....						
34 Old Age.....	Vieillesse.....	5	5	10	5	4	1
35 Other Developmental.....	Autres maladies d'âges.....						

TABLEAU I. CITÉ DE FRÉDERICTON.																	
Still-Born.	A G E S.																
	Un-der 1 year.	1 to 2.	2 to 3.	3 to 4.	4 to 5.	Total under 5.	5 to 10.	10 to 15.	15 to 20.	20 to 25.	25 to 35.	35 to 45.	45 to 55.	55 to 65.	65 to 75.	75 and over.	Not given.
	Morts nes.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Au-des-sous de 1 an.	1 à 2.	2 à 3.	3 à 4.	4 à 5.	Total au-des-sous de 5.	5 à 10.	10 à 15.	15 à 20.	20 à 25.	25 à 35.	35 à 45.	45 à 55.	55 à 65.	65 à 75.	75 et plus.	Non don-nés.
																	1
																	2
	1					1		1									3
												1	1	3	5	5	4
																	5
	1					1											6
																	7
	4	1				5											8
																	9
																	10
																	11
											1						12
										1							13
																	14
																	15
																	16
																	17
																	18
																	19
																	20
														2			21
																	22
											1		2	1		1	23
																	24
										6	6	2		1			25
	3					3											26
																	27
																	28
																	29
	1					1											30
																	31
																	32
															1	9	33
																	34
																	35

TABLE I.

CITY OF FREDERICTON.

Continued.

DISEASES OR OTHER CAUSES OF DEATH. — MALADIES OU AUTRES CAUSES DE DÉCÈS.		SEXES.			CIVIL CONDITIONS. — ÉTATS CIVILS.		
		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
		—	—	—	—	—	—
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Veu- vage.	Non- ma- riés.
LOCAL.	LOCALES.						
36 Cerebro Spinal Affections . . .	Affections cérébro-spinales . .	1	1	2		1	1
37 Apoplexy	Apoplexie	1		1			1
38 Paralysis	Paralytie	5	4	9	5	2	2
39 Insanity	Folie						
40 Epilepsy and Convulsions . . .	Epilepsie et convulsions . . .		3	3			3
41 Heart and Blood Vessels Dis- eases	Maladies du cœur et des vais- seaux sanguins	4	6	10	4	5	1
42 Lung diseases	Affections pulmonaires	5	9	14	4	3	7
43 Quinsy	Angine						
44 Throat Affections	Affections de la gorge	1	2	3			3
45 Stomach diseases	Maladies de l'estomac						
46 Enteritis and other Affections of the Bowels	Entérites et autres maladies d'intestins	3	1	4			4
47 Peritonitis	Péritonite						
48 Liver diseases	Maladies du foie		2	2		2	
49 Spleen diseases	Maladies de la rate						
50 Dentition	Dentition						
51 Diseases of the Urinary organs	Maladies des voies urinaires . .	2		2	1		1
52 Diseases of the Uterus	Maladies de l'utérus						
53 Carbuncle	Anthrax						
54 Synovitis	Synovitis						
55 Joint diseases	Maladies des articulations . .						
56 Skin diseases	Maladies de la peau						
57 Other local diseases	Autres affections locales . . .						
VIOLENT.	VIOLENTES.						
58 Fractures and contusions . . .	Fractures et contusions	1		1			1
59 Gunshot and wounds	Blessures et armes à feu . . .		1	1	1		
60 Burns and Scalds	Brûlures						
61 Poison	Empoisonnements						
62 Drowning	Noyades	2		2			2
63 Suffocation	Suffocation						
64 Railway accidents	Accidents par les ch. de fer . .						
65 Other accidents	Autres accidents		1	1			1
66 Infanticide	Infanticide						
67 Suicide	Suicide		1	1	1		
68 Homicide	Homicide						
69 Hanged (Judicial)	Exécutions de haute justice . .						
ILL-DEFINED AND NOT SPECIFIED CAUSES.	CAUSES INDÉFINIES ET NON SPÉCIFIÉES.						
70 Dropsy	Hydropisie		2	2	1	1	
71 Abscess	Abcès	1		1			1
72 Hemorrhage	Hémorrhagie						
73 Atrophy and Debility	Atrophie et débilité	1		1			1
74 Sudden (Unascertained)	Subite—causes inconnues . . .						
75 Not specified and ill-defined . .	Non spécifiées et indéfinies . .	2		2	1		1
Totals	Totaux	52	71	123	40	20	63

TABLEAU I.		CITÉ DE FRÉDÉRICTON.															Suite.	
		AGES.																
Still-Born.	Under 1 year.	1 to 2.	2 to 3.	3 to 4.	4 to 5.	Total under 5.	5 to 10.	10 to 15.	15 to 20.	20 to 25.	25 to 35.	35 to 45.	45 to 55.	55 to 65.	65 to 75.	75 and over.	Not given.	
Morts nés.	Au-dessous de 1 an.	1 à 2.	2 à 3.	3 à 4.	4 à 5.	Total au-dessous de 5.	5 à 10.	10 à 15.	15 à 20.	20 à 25.	25 à 35.	35 à 45.	45 à 55.	55 à 65.	65 à 75.	75 et plus.	Non don- nés.	
							1					1				1		
												1	1	3	2	3		
	1					1					1		1					
	6					6		1			1	1	2	2	3	2		
			1		1	2	1							3		3		
	3	1				4												
						1								1		1		
	1					1										1		

TABLE I.

TOWN OF ST. JOHNS, P.Q.

		SEXES.			CIVIL CONDITIONS. ÉTATS CIVILS.		
DISEASES OR OTHER CAUSES OF DEATH. — MALADIES OU AUTRES CAUSES DE DÉCÈS.		Males	Fe- males	Totals	Mar- ried.	Wi- dowed	Single
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Veu- vage.	Non- ma- riés.
	ZYMOTIC.						
1							
2	Small-Pox.....						
3	Measles.....	2	2	4			4
4	Scarlet Fever.....		2	2			2
5	Diphtheria.....						
6	Catarrhal Affections.....	4	2	6			6
7	Typhus, Enteric or Typhoid and continued fevers.....	1	2	3	2		1
8	Whooping Cough.....						
9	Diarrhœal Affections.....	6	6	12			12
10	Remittent Fever.....						
11	Other Malarial Diseases.....						
12	Syphilis.....						
13	Erysipelas.....						
14	Puerperal Fever.....						
15	Septicæmia.....						
16	Other Zymotic Diseases.....						
	PARASITIC.						
17	Thrush.....						
18	Worms and other Parasites..						
	DIETIC.						
19	Privation of Food.....						
20	Scurvy.....						
21	Alcoholism.....						
	CONSTITUTIONAL.						
22	Rheumatism.....						
23	Purpura.....						
24	Anæmia.....		1	1		1	
25	Cancer.....						
26	Scrofula and other forms of Tuberculosis.....						
27	Phthisis.....	1	1	2	1		1
28	Hydrocephalus.....						
29	Other Constitutional Diseases.						
	DEVELOPMENTAL.						
30	Premature Birth.....						
31	Cyanosis.....						
32	Malformations.....						
33	At Birth.....	1	1	2			2
34	Child Birth.....		1	1	1		
35	Old Age.....	2	6	8	1	7	
	Other Developmental.....						
	ZYMOTIQUES.						
	Variole.....						
	Rougeole.....						
	Fièvre scarlatine.....						
	Diphthérie.....						
	Affections catharrales.....						
	Typhus, fièvres typhoïdes et fièvres continues.....						
	Coqueluche.....						
	Diarrhées.....						
	Fièvre remittente.....						
	Malaria.....						
	Syphilis.....						
	Erysipèle.....						
	Fièvres puerpérales.....						
	Septicémie.....						
	Autres maladies zymotiques..						
	PARASITIQUES						
	Aphthes.....						
	Vers et autres parasites.....						
	DIÉTIQUES.						
	Défaut d'alimentation.....						
	Scorbut.....						
	Ivrognerie.....						
	CONSTITUTIONNELLES.						
	Rhumatisme.....						
	Purpura.....						
	Anémie.....						
	Cancer.....		1	1		1	
	Scrofules et autres formes de Tubercule.....						
	Phthisie.....		1	2	1		1
	Hydrocéphalie.....						
	Autres mal. constitutionnelles.						
	D'ÂGES.						
	Naissance prématurée.....						
	Cyanosis.....						
	Difformités.....						
	A la naissance.....		1	2			2
	Accouchement.....		1	1	1		
	Vieillesse.....		6	8	1	7	
	Autres maladies d'âges.....						

TABLE I.

TOWN OF ST. JOHNS, P.Q.

Continued.

DISEASES OR OTHER CAUSES OF DEATH. — MALADIES OU AUTRES CAUSES DE DÉCÈS.		SEXES.			CIVIL CONDITIONS. ÉTATS CIVILS.		
		Males	Fe- males.	Totals	Mar- ried.	Wi- dowed	Single
		Hom- mes.	Fem- mes.	To- taux.	Ma- riés.	Ve- u- vage.	Non- ma- riés.
LOCAL.	LOCALES.						
36 Cerebro Spinal Affections.....	Affections cérébro-spinales....	4	3	7			7
37 Apoplexy	Apoplexie.....		1	1	1		
38 Paralysis.....	Paralysie.....	2	1	3	1	2	
39 Insanity.....	Folie.....						
40 Epilepsy and Convulsions.....	Epilepsie et convulsions.....	1	1	2			2
41 Heart and Blood Vessels Disea- ses.....	Maladies du cœur et des vais- seaux sanguins.....	2	3	5	3	2	
42 Lung diseases.....	Affections pulmonaires.....	6	9	15	6	2	7
43 Quinsy.....	Angine.....						
44 Throat Affections.....	Affections de la gorge.....	2	1	3			3
45 Stomach diseases.....	Maladies de l'estomac.....	1		1			1
46 Enteritis and other Affections of the Bowels.....	Entérites et autres maladies d'intestins.....	1	1	2	1		1
47 Peritonitis.....	Péritonite.....	1		1			1
48 Liver diseases.....	Maladies du foie.....	2	1	3		1	2
49 Spleen diseases.....	Maladies de la rate.....						
50 Dentition.....	Dentition.....	2	1	3			3
51 Diseases of the Urinary organs	Maladies des voies Urinaires.						
52 Diseases of the Uterus.....	Maladies de l'uterus.....						
53 Carbuncle.....	Anthrax.....						
54 Synovitis.....	Synovitis.....						
55 Joint diseases.....	Maladies des articulations.....		1	1			1
56 Skin diseases.....	Maladies de la peau.....						
57 Other local diseases.....	Autres affections locales.....						
VIOLENT.	VIOLENTES.						
58 Fractures and contusions.....	Fractures et contusions.....						
59 Gunshot and wounds.....	Blessures et armes à feu.....						
60 Burns and Scalds.....	Brûlures.....						
61 Poison.....	Empoisonnements.....						
62 Drowning.....	Noyades.....	1		1			1
63 Suffocation.....	Suffocation.....						
64 Railway accidents.....	Accidents par les ch. de fer.....	1		1	1		
65 Other accidents.....	Autres accidents.....						
66 Infanticide.....	Infanticide.....						
67 Suicide.....	Suicide.....						
68 Homicide.....	Homicide.....						
69 Hanged (Judicial).....	Exécutions de haute justice.....						
ILL-DEFINED AND NOT SPECIFIED CAUSES.	CAUSES INDÉFINIES ET NON SPÉCIFIÉES.						
70 Dropsy.....	Hydropisie.....						
71 Abscess.....	Abcès.....						
72 Hemorrhage.....	Hémorrhagie.....						
73 Atrophy and Debility.....	Atrophie et débilité.....	12	13	25			25
74 Sudden (Unascertained).....	Subite—causes inconnues.....						
75 Not specified and ill-defined..	Non spécifiées et indéfinies.....		1	1			1
Totals.....	Totaux.....	55	61	116	18	15	83

TABLEAU I.		VILLE DE ST. JEAN, P.Q.														Suite.		
Still-Born.	A G E S.																	
	Un-der 1 year.	1 to 2.	2 to 3.	3 to 4.	4 to 5.	Total under 5.	5 to 10.	10 to 15.	15 to 20.	20 to 25.	25 to 35.	35 to 45.	45 to 55.	55 to 65.	65 to 75.	75 and over.	Not given.	
	Morts nés.	Au-des-sous de 1 an.	1 à 2.	2 à 3.	3 à 4.	4 à 5.	Total au-des-sous de 5.	5 à 10.	10 à 15.	15 à 20.	20 à 25.	25 à 35.	35 à 45.	45 à 55.	55 à 65.	65 à 75.	75 et plus.	Non don-nés.
	3	1		1	1	6					1				1			
															1		2	
		1				1											1	
	1				1	2			1	1	3	2	1	1	2	1	3	
	1	1	1		1	3												
						1												
		1							1						1			
											1		1					
	1	1	1			3												

TABLE II.

DISEASES IN THE ORDER OF FATALITY, RELIGIONS, NATIONALITIES,
AND OCCUPATIONS.

TABLEAU II.

MALADIES DANS L'ORDRE DE LA FATALITÉ, RELIGIONS, NATIONALI-
TÉS ET OCCUPATIONS.

TABLE II.

CITY OF MONTREAL.

DISEASES IN THE ORDER OF FATALITY. — MALADIES DANS L'ORDRE DE LA FATALITÉ.		Total Deaths. — Total des décès. •	RELIGIONS.		
			Roman Catho- lics. — Catholi- ques Ro- mains	Ch. of Eng- land. — Eglise d'An- gle- terre.	Pres- byte- rians. — Pres- byté- riens.
1	Diarrheal Affections	995	944	29	10
2	Atrophy and Debility	784	703	48	18
3	Lung diseases	703	576	65	34
4	Phthisis	476	398	36	28
5	Cerebro Spinal Affections	466	417	20	19
6	Enteritis and other Affections of the Bowels	300	266	12	12
7	Heart and Blood Vessels Diseases	265	202	24	25
8	Premature Birth	208	203	3	.....
9	Anæmia	174	167	1	2
10	Epilepsy and Convulsions	149	129	9	7
11	Diseases of the Urinary organs	112	77	13	9
12	Cancer	99	80	8	8
13	Scrofula and other forms of Tuber- culosis	99	90	5	.....
14	Dentition	98	97	1	.....
15	Paralysis	95	90	1	3
16	Throat Affections	92	83	4	.....
17	Typhus, Enteric or Typhoid and continued fevers	74	54	11	2
18	Diphtheria	66	53	7	2
19	Old Age	62	34	12	11
20	Measles	57	50	6	.....
21	Suffocation	55	53	.....	2
22	Liver diseases	48	42	4	1
23	Apoplexy	46	32	8	5
24	Hydrocephalus	39	22	8	3
25	Peritonitis	37	31	5	1
26	Stomach diseases	36	31	2	3
27	Whooping Cough	35	29	2	.....
28	Other accidents	35	29	2	2
29	Catarrhal Affections	32	26	2	2
30	At Birth	32	31	.....	.....
31	Dropsy	25	23	.....	1
32	Not specified and ill-defined	22	14	1	4
33	Rheumatism	21	19	1	1

TABLEAU II. CITE DE MONTREAL.																	
RELIGIONS.			NATIONALITIES. NATIONALITES.					OCCUPATIONS.									
Metho- dists.	Bap- tists.	Oth- ers.	Eng- lish.	Fren- ch.	Irish.	Scot- ch.	Oth- ers.	Agri- cul- tural.	Com- mer- cial.	Do- mestic	In- dus- trial.	Pro- fes- sional	La- bour- ers.	Not Classed.			
Mé- tho- distes.	Bap- tistes.	Au- tres.	An- glais.	Fran- çais.	Irlan- dais.	Ecos- sais.	Au- tres.	Agri- cole.	Com- mer- ciale.	Do- mestique.	In- dus- trielle	Pro- fes- sions.	Jour- na- liers.	Non Classé.			
7 7 18	4 4 3	1 4 7	6 28 26	822 525 466	97 143 109	4 7 14	66 81 88	6 14 9	211 129 170	30 28 36	366 195 247	40 22 44	224 131 165	118 265 32	1 2 3		
7 7	2 ...	5 3	14 6	297 366	168 47	6 9	51 38	10 3	108 118	22 21	206 200	24 20	77 92	29 12	4 5		
8	2	...	...	233	29	3	35	2	88	8	126	6	64	6	6		
12 1 1	...	2 1 3	13 2 6	138 182 129	75 17 31	12 ...	27 7 5	12 ...	72 49 14	22 3 2	82 95 18	8 4 ...	42 48 5	27 9 135	7 8 9		
3 10	...	1 3 3	5 7 3	101 61 60	23 20 22	1 6 5	19 18 9	2 3 2	43 38 27	5 5 11	60 43 24	7 7 3	29 13 23	3 3 9	10 11 12		
3 ...	1 ...	...	2 ...	68 89 78	20 5 11	...	9 3 2	2 1 4	23 29 23	3 2 2	30 40 27	1 4 7	12 22 15	28 1 13	13		
3 2 3	1 2 1	1 3 ...	3 10 2	80 42 39	1 10 10	...	8 11 15	...	35 15 24	2 7 2	38 26 26	4 2 5	11 19 5	2 2 4	16		
5 ...	...	1 ...	11 2 1	26 46 45	11 3 5	10 ...	4 6 4	9 1 ...	15 9 16	6 1 1	10 23 26	2 3 4	14 18 7	6 2 1	19		
1 3	...	1 3	3 ...	36 21 18	6 16 4	2 ...	5 4 17	2 2 1	10 13 13	2 4 1	19 14 13	2 4 3	9 2 6	4 7 2	22		
...	...	...	2 1	23 26 22	10 4 7	...	2 3 6	...	9 5 11	4 4 2	16 12 16	...	6 7 1	2 7 ...	25		
1 ...	...	1 2	1 2	23 16 26	6 10 5	2 ...	3 4 1	1 4 ...	5 7 9	1 ...	11 8 16	...	16 7 4	1 4 1	28		
1 1	...	2 ...	...	21 12 14	3 3 6	...	1 7 ...	2 ...	4 7 ...	1 3 10	8 ...	1 ...	8 5 5	1 2 1	31		

TABLE II.

CITY OF MONTREAL.

Continued.

DISEASES IN THE ORDER OF FATALITY. MALADIES DANS L'ORDRE DE LA FATALITÉ.		Total Deaths. — Total des décès.	RELIGIONS.		
			Roman Catholics. — Catholiques Romaines	Ch. of Eng- land. — Eglise d'Angle- terre.	Pres- byte- rians. — Pres- byté- riens.
34	Child Birth.....	Accouchement.....	15	14	1
35	Syphilis.....	Syphilis.....	14	14	
36	Diseases of the Uterus.....	Maladies de l'utérus.....	14	12	1
37	Fractures and Contusions.....	Fractures et contusions.....	14	11	2
38	Puerperal Fever.....	Fièvres puerpérales.....	13	8	3
39	Septicæmia.....	Septicémie.....	13	5	4
40	Drowning.....	Noyades.....	13	10	2
41	Hemorrhage.....	Hémorrhagie.....	13	13	
42	Alcoholism.....	Ivrognerie.....	12	11	
43	Erysipelas.....	Erysipèle.....	11	9	1
44	Other Constitutional Diseases.....	Autres maladies constitutionnelles.....	11	7	3
45	Scarlet Fever.....	Fièvre scarlatine.....	10	7	3
46	Other local diseases.....	Autres affections locales.....	10	8	1
47	Burns and Scalds.....	Brûlures.....	10	10	
48	Skin diseases.....	Maladies de la peau.....	8	7	1
49	Railway accidents.....	Accidents per les chemins de fer.....	8	8	
50	Quinsy.....	Angine.....	7	7	
51	Joint diseases.....	Maladies des articulations.....	7	7	
52	Abscess.....	Abcès.....	7	7	
53	Privation of Food.....	Défaut d'alimentation.....	6	5	
54	Malformations.....	Difformités.....	6	4	
55	Suicide.....	Suicide.....	6	5	
56	Cyanosis.....	Cyanosis.....	5	3	
57	Other Zymotic Diseases.....	Autres maladies zymotiques.....	4	3	1
58	Insanity.....	Folie.....	4	3	1
59	Gunshot and wounds.....	Blessures et armes à feu.....	4	2	1
60	Other Malarial Diseases.....	Malaria.....	2	2	
61	Worms and other Parasites.....	Vers et autres parasites.....	2	2	
62	Poison.....	Empoisonnements.....	2	1	
63	Scurvy.....	Scorbut.....	1	1	
64	Purpura.....	Purpura.....	1		1
65	Homicide.....	Homicide.....	1		
Totals.....		Totaux.....	6,091	5,300	373
				229	

TABLEAU II. CITÉ DE MONTRÉAL. <i>Suite.</i>														
RELIGIONS.			NATIONALITIES. NATIONALITÉS.					OCCUPATIONS.						
Metho- dists.	Bap- tists.	Oth- ers.	Eng- lish.	Fren- ch.	Irish.	Scot- ch.	Oth- ers.	Agri- cul- tural.	Com- mer- cial.	Do- mestic	Ind- us- trial.	Pro- fes- sional	La- bour- ers.	Not Classed.
Mé- tho- distes.	Bap- tistes.	Au- tres.	An- glais.	Fran- çais.	Irlan- dais.	Ecos- sais.	Au- tres.	Agri- cole.	Com- mer- ciale.	Do- mesti- que.	Ind- us- trielle	Pro- fes- sions.	Jour- na- liers.	Non Classé.
.....	10	4	.....	1	.....	3	1	6	.....	3	2
.....	11	3	.....	.....	.....	.....	.....	2	.....	2	10
.....	1	9	2	1	1	.....	2	5	4	.....	3	.....
.....
.....	1	6	6	.....	1	.....	2	2	5	1	2	2
1	7	6	3	.....	3	.....	1	1	8	.....	2	1
.....	3	4	.....	2	4	.....	3	5	3	1	.....	1
.....
.....	1	4	6	.....	2	.....	5	1	6	.....	1	.....
.....	12	1	.....	.....	.....	2	1	3	1	5	1
.....	1	.....	.....	6	6	.....	.....	.....	2	1	5	.....	3	1
.....
1	7	2	.....	2	.....	2	.....	4	.....	4	1
.....	5	2	.....	4	.....	1	1	6	1	2	.....
.....	1	6	1	.....	2	.....	1	.....	5	1	3	.....
.....
.....	6	2	.....	2	1	3	.....	2	.....	2	2
.....	9	1	.....	.....	.....	1	.....	7	.....	2	.....
.....	6	1	.....	1	.....	3	.....	4	.....	1	.....
.....
.....	5	3	.....	.....	.....	4	.....	2	.....	1	1
.....	7	.....	.....	.....	.....	2	1	3	.....	1	.....
.....	6	1	.....	.....	.....	1	.....	2	1	2	1
.....
.....	5	2	.....	.....	.....	2	.....	.....	2	2	1
1	5	.....	.....	1	.....	2	.....	3	1	.....	.....
1	1	.....	3	1	.....	2	.....	2	.....	2	.....	2	.....
.....
1	3	1	.....	2	.....	1	1	2	.....	1	1
.....	2	2	3	.....	.....	.....	.....	4	.....	.....	.....	.....	1
.....	2	1	.....	1	.....	.....	1	3	.....	.....	.....
.....
.....	2	1	1	.....	.....	.....	1	2	.....	1	.....
.....	1	.....	3	.....	.....	1	1	1	.....	1	.....	1	.....
.....	1	.....	.....	1	.....	1	.....	.....	.....	1	.....
.....	2	.....	.....	.....	.....	.....	1	1	.....	.....	.....
.....	1	.....	1	.....	.....	2	.....	.....	.....	1	1	.....	.....
.....
.....
.....	1	.....	1	.....	.....	.....	.....	.....
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	1
110	22	57	167	4,307	927	96	594	103	1,401	265	2,151	242	1,163	766

TABLE II.

CITY OF TORONTO.

			RELIGIONS.		
DISEASES IN THE ORDER OF FATALITY.		Total Deaths.	Roman Catholics.	Ch. of Eng-land.	Pres-byte-riens.
MALADIES DANS L'ORDRE DE LA FATALITÉ.		Total des décès.	—	—	—
			Ca-tholi-ques Ro-mains	Eglise d'An-gle-terre.	Pres-byté-riens.
Lung diseases.....	Affections pulmonaires.....	336	62	116	61
Phthisis.....	Phthisie.....	235	69	68	47
Atrophy and Debility.....	Atrophie et débilité.....	220	29	78	29
Heart and Blood Vessels Diseases..	Maladies du cœur et des vaisseaux sanguins.....	188	30	62	32
Diarrhœal Affections.....	Diarrhées.....	183	43	68	21
Diphtheria.....	Diphtérie.....	177	16	62	38
Cerebro Spinal Affections.....	Affections cérébro-spinales.....	130	15	47	23
Epilepsy and Convulsions.....	Epilepsie et convulsions.....	127	33	38	14
Typhus, Enteric or Typhoid and continued fevers	Typhus, fièvres typhoïdes et fièvres continues.....	117	14	47	20
Old Age.....	Vieillesse.....	98	40	20	14
Enteritis and other Affections of the Bowels	Entérites et autres maladies d'intestins	87	13	33	7
Diseases of the Urinary organs....	Maladies des voies urinaires.....	82	22	25	11
Throat Affections.....	Affections de la gorge	71	16	29	9
Premature Birth.....	Naissance prématurée	64	23	21	6
Cancer.....	Cancer.....	62	12	18	9
Paralysis	Paralyse.....	51	14	12	11
Hydrocephalus	Hydrocéphalie	47	13	11	6
Peritonitis.....	Péritonite.....	44	2	17	11
Apoplexy	Apoplexie.....	40	9	13	8
Stomach diseases.....	Maladies de l'estomac.....	38	8	15	3
Scarlet Fever.....	Fièvre scarlatine.....	34	3	9	6
Scrofula and other forms of Tuberculosis.....	Scrofules et autres formes de Tubercule.....	34	7	15	2
Septicæmia.....	Septicémie.....	28	6	10	6
Not specified and ill-defined.....	Non spécifiées et indéfinies.....	27	3	15	4
Liver diseases.....	Maladies du foie	23	6	6	5
Drowning	Noyades	21	4	8	1
Whooping Cough.....	Coqueluche.....	18	3	7	1
Other Constitutional Diseases .. .	Autres maladies constitutionnelles..	15	3	8	1
Fractures and contusions.....	Fractures et contusions	15	3	6	1
Dropsy.....	Hydropisie	15	3	6	1
Measles.....	Rougeole.....	14	2	5	1
Anæmia.....	Anémie	13	1	5	1
Syphilis.....	Syphilis.....	12	2	2	2

TABLEAU II. CITÉ DE TORONTO.																	
RELIGIONS.			NATIONALITIES. NATIONALITÉS.					OCCUPATIONS.									
Metho- dists.	Bap- tists.	Ortho- dox.	Eng- lish.	Fren- ch.	Irish.	Scot- ch.	Oth- ers.	Agric- ultural.	Com- mer- cial.	Do- mestic.	Indus- trial.	Pro- fes- sional.	La- bour- ers.	Not Classed.			
Mé- tho- distes.	Bap- tistes.	Ortho- dox.	Ang- lais.	Fran- çais.	Irlandais.	Écos- sais.	Autres.	Agric- ole.	Com- mer- ciale.	Domestique.	Indus- trielle.	Pro- fessions.	Jour- na- liers.	Non Classé.			
55	15	27	172	5	93	42	24	13	74	16	137	14	61	21	1		
35	6	10	84	6	100	35	10	5	55	14	86	12	50	13	2		
46	7	31	120	1	48	17	34	7	41	21	60	8	40	43	3		
34	16	14	93	1	53	28	13	13	36	10	66	20	23	20	4		
35	1	15	99	4	57	15	8	3	52	9	62	6	43	8	5		
43	8	10	108	3	41	23	2	5	51	9	72	15	22	3	6		
29	4	12	65	2	32	20	11	2	33	9	42	11	24	9	7		
27	3	12	60	2	36	14	15	2	39	8	34	6	26	12	8		
30	5	1	67	2	31	12	5	4	31	10	39	7	23	3	9		
12	3	9	26	1	52	12	7	12	11	5	16	7	28	19	10		
20	7	7	51		26	5	5	4	23	1	33	4	16	6	11		
18	2	4	37	4	29	7	5	3	22	6	25	7	16	3	12		
13	1	3	33		26	7	5		29	1	21	2	14	4	13		
9	2	3	33	2	23	4	2	1	19	2	21	4	16	1	14		
17	2	4	28		26	5	3	3	18	2	18	4	9	8	15		
9	1	4	19	2	20	9	1	2	13	3	20	3	7	3	16		
10	3	4	27		11	4	5	1	12	2	18	4	7	3	17		
7	1	6	22		15	6	1		13	2	14	3	9	3	18		
5	3	2	14		13	8	5	2	10	1	12	3	6	6	19		
10		2	18		16	2	2		8	2	12	5	9	2	20		
12	2	2	21		3	8	2		13		17		3	1	21		
5		5	20		7	2	5	1	5	5	5	2	10	6	22		
4		2	12	1	8	4	3		8	2	8	2	5	3	23		
3	2		18	1	7	1		1	7	4	4	2	7	2	24		
3	1	2	9		9	3	2	1	8	1	7	1	4	1	25		
4	2	3	13	1	4		3		7	2	5	2	3	2	26		
6	1		12		3	2	1	1	9		5		3		27		
3			8		6	1				4		2	3		28		
3	1	1	6	2	5	1	1		4	2	3	1	4	1	29		
5			8		4	1	2	1	5	3	3	2	1		30		
3		3	10		3	1			4	1	6	1	2		31		
4	1	1	8		1	4			2		5	4	1	1	32		
		6	4		1		7			4	1			7	33		

TABLE II.

CITY OF TORONTO.

Continued.

DISEASES IN THE ORDER OF FATALITY.			RELIGIONS.			
MALADIES DANS L'ORDRE DE LA FATALITÉ.			Total Deaths.	Roman Catholics.	Ch. of Eng-land.	Pres-byte-riens.
			—	—	—	—
			Total des décès.	Catholiques Romains	Eglise d'Angle-terre.	Pres-byté-riens.
54	Burns and Scalds.	Brûlures.	11		9	1
35	Malformations.	Difformités	10	5	1	2
36	Suffocation	Suffocation	10	2	1	3
37	Railway accidents	Accident par les chemins de fer.	10	3	4	2
38	Child Birth.	Accouchement.	9	3	5	
39	At Birth.	A la naissance	8	1	4	
40	Poison	Empoisonnements.	8	1	3	1
41	Other accidents.	Autres accidents.	8		4	1
42	Catarrhal Affections.	Affections catharrales.	7		4	1
43	Erysipelas	Erysipèle.	7	2	2	2
44	Rheumatism.	Rhumatisme.	6	1	3	
45	Gunshot and wounds.	Blessures et armes à feu.	6		1	2
46	Abscess	Abcès.	6	3	1	2
47	Puerperal Fever.	Fièvres puerpérales.	5	1	1	1
48	Cyanosis	Cyanosis	5		2	
49	Insanity.	Folie.	5	1		2
50	Quinsy.	Angine	5		2	1
51	Dentition.	Dentition.	5		2	
52	Hemorrhage	Hémorrhagie	5	1	1	
53	Purpura	Purpura	4	1		3
54	Skin diseases	Maladies de la peau.	4	1	2	
55	Suicide.	Suicide.	4	1	1	
56	Diseases of the Uterus.	Maladies de l'utérus.	3	2		
57	Other local diseases.	Autres affections locales	3	2		
58	Thrush	Aphthes.	2	1	1	
59	Worms and other parasites.	Vers et autres parasites.	2		1	
60	Alcoholism.	Ivrognerie	2	1	1	
61	Remittent Fever	Fièvre remittente	1			
62	Other Malarial Diseases	Malaria	1			
63	Joint diseases.	Maladies des articulations.	1		1	
64	Homicide.	Homicide.	1	1		
Totals.			2,830	563	959	435

TABLEAU II.			CITÉ DE TORONTO.						Suite.						
RELIGIONS.			NATIONALITIES. NATIONALITÉS.						OCCUPATIONS.						
Metho- dists.	Bap- tists.	Oth- ers.	Eng- lish.	Fren- ch.	Irish.	Scot- ch.	Oth- ers.	Agri- cul- tural.	Com- mer- cial.	Do- mestic	In- dus- trial.	Pro- fes- sional.	La- bour- ers.	Not Classed.	
Mé- tho- distes.	Bap- tistes.	Aut- res.	Ang- lais.	Fran- çais.	Irlan- dais.	Ecos- sais.	Aut- res.	Agri- cole.	Com- mer- ciale.	Do- mestique.	Indus- trielle.	Pro- fessions.	Jour- na- liers.	Non Classé.	
1			11						2	2		1	6		34
	1	1	3	1	4	1	1		1	1	4	2	2		35
2	1	1	5	1	3	1			3		2		4	1	36
		1	4		2	3	1	2	3		4		1		37
1			6		3				3		2	1	3		38
3			6		2				2		4	1	1		39
		2	4		2	1	1				4		1	3	40
3			5		1	2			1	1	2		4		41
1		1	5		1	1		1	1		3		1	1	42
			3		3	1			2		3	1	1		43
1		1	4		1		1	1	2		1		2		44
1		2	3			3		1	2	1	1	1			45
			3		2	1			1	1	2		2		46
2			2		3				1		2		1		47
2		1	3		1	1					4		1		48
		1			3	1	1		1	2				2	49
2			3			2			1		1	1	2		50
1		2	2		2		1		1	2			2		51
		1	2		2		1		1		2			2	52
1			1		2	1			2		1		1		53
			3		1			1					2	1	54
	1		1		3				1				2	1	55
1					3				1	1			1		56
1					3				1	1			1		57
			1		1						1		1		58
1			2						1		1				59
			1		1							1	1		60
	1		1						1						61
1					1				1						62
			1						1						63
					1					1					64
551	103	219	1,410	42	860	322	196	93	702	174	924	174	538	225	

TABLE II.

CITY OF QUEBEC.

DISEASES IN THE ORDER OF FATALITY. — MALADIES DANS L'ORDRE DE LA FATALITÉ.		Total Deaths. — Total des décès.	RELIGIONS.		
			Roman Cath- olics.	Ch. of Eng- land.	Pres- byte- rians.
			Cath- olics Romain	Eglise d'Ang- le- terre.	Pres- byte- riens.
1	Diphtheria	Diphthérie.....	401	393	6
2	Cerebro Spinal Affections.....	Affections cérébro-spinales.....	333	323	4
3	Atrophy and Debility.....	Atrophie et débilité.....	286	280	5
4	Lung diseases	Affections pulmonaires.....	220	204	11
5	Diarrhoeal Affections.....	Diarrhées.....	209	202	3
6	Phthisis.....	Phthisie.....	159	149	3
7	Old Age.....	Vieillesse.....	121	101	13
8	Dentition	Dentition	97	92	4
9	At Birth	A la naissance.....	87	87	
10	Heart and Blood Vessels Diseases.....	Maladies du cœur et des vaisseaux sanguins.....	84	71	9
11	Paralysis.....	Paralyse.....	60	55	3
12	Measles.....	Rougeole.....	58	56	2
13	Anæmia.....	Anémie.....	51	51	
14	Enteritis and other Affections of the Bowels.....	Entérites et autres maladies d'in- testins.....	51	49	1
15	Epilepsy and Convulsions.....	Epilepsie et convulsions.....	47	46	1
16	Catarrhal Affections.....	Affections catharrales.....	24	24	
17	Other accidents.....	Autres accidents.....	23	17	2
18	Cancer.....	Cancer.....	22	19	1
19	Throat Affections.....	Affections de la gorge.....	20	20	
20	Typhus, Enteric or Typhoid and continued fevers.....	Typhus, fièvres typhoïdes et fièvres continues.....	19	17	1
21	Stomach diseases.....	Maladies de l'estomac.....	18	16	1
22	Dropsy.....	Hydropisie.....	18	18	
23	Liver Diseases.....	Maladies du foie.....	16	16	
24	Not specified and ill-defined.....	Non spécifiées et indéfinies.....	16	11	5
25	Whooping Cough.....	Coqueluche.....	13	13	
26	Syphilis.....	Syphilis.....	12	12	
27	Scrofula and other forms of Tuber- culosis.....	Scrofules et autres formes de Tuber- cule.....	11	11	
28	Diseases of the Urinary organs.....	Maladies des voies urinaires.....	11	9	1
29	Puerperal Fever.....	Fièvres puerpérales.....	10	10	
30	Scarlet Fever.....	Fièvre scarlatine.....	9	9	

TABLEAU II. CITÉ DE QUÉBEC.														
RELIGIONS.			NATIONALITIES. NATIONALITÉS.					OCCUPATIONS.						
Metho- dists.	Bap- tists.	Oth- ers.	Eng- lish.	Fren- ch.	Irish.	Scot- ch.	Oth- ers.	Agri- cul- tural.	Com- mer- cial.	Do- mestic	Indus- trial.	Pro- fes- sional	Lau- bour- ers.	Not Classed.
Mé- tho- distes.	Bap- tistes.	Au- tres.	Ang- lais.	Fran- çais.	Irlan- dais.	Ecos- sais.	Au- tres.	Agri- cole.	Com- mer- ciale.	Do- mesti- que.	Indus- trielle	Pro- fes- sions.	Jour- na- liers.	Non Classé.
2			7	364	25	2	3	4	108	8	187	13	79	2
3	1	1	7	307	10	1	8	3	86	10	146	9	73	6
1			5	196	19		66	1	61	1	84	19	53	67
		1	8	164	16	6	26	9	53	2	70	21	38	27
2		2	6	182	5	2	14	5	61	4	92	11	22	14
2			5	120	29	2	3	7	32	1	49	20	46	4
3			7	71	38	3	2	10	13		35	3	49	11
			3	88	1	1	4	1	27	2	48	5	11	3
			1	82	3		1	1	21	1	37	4	20	3
2	1		11	58	12	1	2	1	24		28	5	25	1
			3	48	8	1		1	12	1	17	7	19	3
			2	55			1		20	1	29	1	6	1
				51					18		20	2	11	
			2	42	6	1		2	16	4	19	2	8	
			1	25	21				12		11	5	19	
1				21	2		1		4		12	1	6	1
1			2	14	4	3			8		7		6	2
			4	15	3			1	5		8	2	5	1
			1	17			2	1	4		9	3	1	2
	1		1	15	3			3	2	1	4	2	7	
			1	7		1	9		4	1	1	3		9
				10	8				2		7	1	8	
				12	3		1		5		5		4	2
			4	10			2		8		3	1	4	
				12		1					9		4	
				2			10				2			10
				3	1		7		1		3			7
			1	9		1			6		4		1	
				10					3		5		1	
				9					6		1	1	1	

TABLE II.

CITY OF QUEBEC.

Continued.

DISEASES IN THE ORDER OF FATALITY.			RELIGIONS.			
MALADIES DANS L'ORDRE DE LA FATALITÉ.			Total Deaths.	Roman Catholics.	Ch. of Eng-land.	Pres-byte-ri-ans.
			Total des décès.	Catholiques Romains	Eglise d'Angle-terre.	Pres-byté-ri-ens.
31	Premature Birth	Naissance prématurée.	9	9		
32	Rheumatism	Rhumatisme	8	6	1	
33	Child Birth	Accouchement	7	6		1
34	Quinsy	Angine	7	7		
35	Hemorrhage	Hémorrhagie	7	7		
36	Other Zymotic Diseases	Autres maladies zymotiques.	5	5		
37	Apoplexy	Apoplexie	5	5		
38	Skin diseases	Maladies de la peau	5	5		
39	Abscess	Abcès	5	5		
40	Drowning	Noyades	4	3		
41	Small-Pox	Variole	3	3		
42	Peritonitis	Péritonite	3	3		
43	Fractures and contusions	Fractures et contusions	3	3		
44	Septicæmia	Septicémie	2	2		
45	Burns and Scalds	Brûlures	2	2		
46	Erysipelas	Erysipèle	1	1		
47	Worms and other parasites	Vers et autres parasites	1	1		
48	Privation of food	Défaut d'alimentation	1			1
49	Scurvy	Scorbut	1	1		
50	Alcoholism	Ivrognerie	1	1		
51	Hydrocephalus	Hydrocéphalie	1		1	
52	Other Constitutional Diseases	Autres maladies constitutionnelles	1	1		
53	Joint diseases	Maladies des articulations	1	1		
54	Other local diseases	Autres affections locales	1	1		
55	Poison	Empoisonnements	1	1		
56	Suffocation	Suffocation	1	1		
57	Railway accidents	Accidents par les chemins de fer	1	1		
58	Suicide	Suicide	1			
Totals			2,594	2,462	77	27

TABLEAU II.

CITÉ DE QUEBEC.

Suite.

RELIGIONS.			NATIONALITIES. NATIONALITÉS.					OCCUPATIONS.						
Metho- dists.	Bap- tists.	Oth- ers.	Eng- lish.	Fren- ch.	Irish.	Scot- ch.	Oth- ers.	Agri- cul- tural.	Com- mer- cial.	Do- mestic	Indus- trial.	Pro- fes- sional	La- bour- ers.	Not Classed.
Mé- tho- distes.	Bap- tistes.	Au- tres.	An- glais.	Fran- çais.	Irlan- dais.	Ecos- sais.	Au- tres.	Agri- cole.	Com- mer- ciale.	Do- mesti- que.	Indus- trielle.	Pro- fes- sions.	Jour- na- liers.	Non Classé.
1			1	6	1		8	1	4		1			8
				4	2	1			2		3		3	31
											2			32
														33
				1			6		1					34
				4			3		1	1	2			35
							5							36
				5					2		3			37
				5					2		1	1	1	38
				4			1		1		2		1	39
		1		2	1		1		2		1		1	40
				3					3					41
				3					2		1			42
				3					2		1			43
				1	1				1				1	44
				2									2	45
				1							1			46
				1					1					47
						1		1						48
				1							1			49
				1									1	50
					1			1						51
				1					1					52
				1					1					53
				1					1					54
				1					1					55
				1					1					56
				1									1	57
		1					1							58
19	3	6	83	2,072	224	28	187	54	651	38	971	142	538	200

TABLE II.

CITY OF HAMILTON.

			RELIGIONS.		
DISEASES IN THE ORDER OF FATALITY.		Total Deaths.	Roman Catholics.	Ch. of Eng-land.	Pres-byte-rians.
MALADIES DANS L'ORDRE DE LA FATALITÉ.		Total des décès.	Catholiques Romains	Eglise d'Angle-terre.	Pres-byté-riens.
Lung diseases.....	Affections pulmonaires.....	121	30	26	24
Heart and Blood Vessels Diseases..	Maladies du cœur et des vaisseaux sanguins	70	9	19	15
Phthisis.....	Phthisie.....	65	14	14	13
Cerebro Spinal Affections.....	Affections cérébro-spinales	52	12	10	11
Atrophy and Debility.....	Atrophie et débilité	49	8	10	13
Diarrhoeal Affections.....	Diarrhées.....	44	12	10	5
Cancer.....	Cancer.....	31	4	14	5
Premature Birth.....	Naissance prématurée.....	30	10	6	5
Enteritis and other Affections of the Bowels.....	Entérites et autres maladies d'intestins	30	7	5	7
Epilepsy and Convulsions	Epilepsie et convulsions	27	5	5	5
Diseases of the Urinary organs.....	Maladies des voies urinaires.....	27	4	4	4
Paralysis.....	Paralysie.....	25	6	7	7
Old Age.....	Vielliesse.....	23	4	5	8
Catarrhal Affections	Affections catharrales	12	2	2	1
Not specified and ill-defined.....	Non spécifiées et indéfinies.....	11	3	1	2
Diphtheria.....	Diptérie.....	10	3	3	3
Typhus, Enteric or Typhoid and continued fevers.....	Typhus, fièvres typhoïdes et fièvres continues.....	10	2		3
Scrofula and other forms of Tuberculosis	Scrofules et autres formes de Tubercule.....	10	7	1	
Peritonitis.....	Péritonite	10	2	2	2
Apoplexy.....	Apoplexie	9	1	2	3
Throat Affections.....	Affections de la gorge	9	1		5
Other accidents.....	Autres accidents.....	9	3	1	1
Other Constitutional Diseases.....	Autres maladies constitutionnelles.....	8	3	2	1
Hydrocephalus.....	Hydrocéphalie	7	2		3
Insanity.....	Folie.....	7		2	1
Drowning.....	Noyades.....	7	1	1	2
Dropsy.....	Hydropisie	7	2	1	1
Whooping Cough.....	Coqueluche	6	1	2	1
Stomach diseases.....	Maladies de l'estomac.....	6	1	1	2
Liver diseases.....	Maladies du foie.....	6		1	2

TABLEAU II.			CITE D'HAMILTON.													
RELIGIONS.			NATIONALITIES. NATIONALITÉS.					OCCUPATIONS.								
Metho- dists.	Bap- tists.	Oth- ers.	Eng- lish.	Fren- ch.	Irish.	Scot- ch.	Oth- ers.	Agri- cul- tural.	Com- mer- cial.	Do- mestic	In- dus- trial.	Pro- fes- sional	La- bour- ers.	Not Classed.		
Mé- tho- distes.	Bap- tistes.	Au- tres.	An- glais.	Fran- çais.	Irlan- dais.	Ecos- sais.	Au- tres.	Agri- cole.	Com- mer- ciale.	Do- mesti- que.	In- dus- trielle	Pro- fes- sions.	Jour- na- liers.	Non Classé.		
25	8	8	47	2	38	25	9	7	30	6	45	10	19	4	1	
14	5	8	30	.....	16	14	10	2	18	3	34	4	6	3	2	
19	2	3	28	2	19	9	7	1	15	2	31	2	13	1	3	
17	1	1	25	2	7	13	5	4	15	...	23	2	7	1	4	
13	1	4	21	2	8	12	6	1	10	3	13	1	17	4	5	
14	2	1	18	2	12	7	5	2	10	3	13	1	15	...	6	
7	1	...	13	...	9	7	2	2	8	3	9	2	6	1	7	
7	1	1	9	1	13	5	2	...	7	1	15	...	4	3	8	
6	2	3	10	.....	10	8	2	2	11	2	10	...	3	2	9	
10	1	1	12	1	4	7	3	1	4	4	14	1	3	.....	10	
8	1	6	11	...	6	4	6	3	10	1	6	2	4	1	11	
3	1	1	12	...	5	7	1	3	7	1	5	3	3	3	12	
4	1	1	6	.....	7	9	1	3	4	1	7	...	6	2	13	
5	1	1	5	.....	3	3	1	2	4	...	5	1	...	...	14	
1	1	3	4	.....	3	3	1	1	2	1	5	...	1	1	15	
1	...	...	5	.....	3	2	...	1	1	...	4	...	3	1	16	
4	...	1	3	...	4	2	1	...	1	...	6	2	1	...	17	
2	...	...	...	...	9	1	...	1	1	1	3	1	2	1	18	
3	1	...	4	...	2	2	2	...	1	...	3	1	2	3	19	
3	...	...	2	...	5	2	...	1	2	...	2	...	2	2	20	
3	...	...	3	...	...	5	1	...	5	...	3	...	1	...	21	
1	2	1	4	...	4	1	...	1	3	...	3	...	2	...	22	
2	...	...	2	1	4	1	...	...	4	1	3	...	...	...	23	
2	...	...	2	...	2	3	...	...	1	...	3	1	2	...	24	
3	...	1	4	...	...	2	1	...	...	2	3	...	2	...	25	
2	...	1	3	...	1	2	1	...	4	...	1	...	2	...	26	
3	...	...	4	...	...	2	1	1	2	...	3	1	...	...	27	
2	...	...	3	...	2	...	1	...	...	...	4	...	2	...	28	
2	...	...	3	...	1	2	...	...	1	...	3	2	...	...	29	
2	...	1	2	...	2	1	1	1	1	...	2	...	2	...	30	

TABLE II.		CITY OF HAMILTON.		Continued.	
DISEASES IN THE ORDER OF FATALITY. MALADIES DANS L'ORDRE DE LA FATALITÉ.		Total Deaths. Total des décès.	RELIGIONS.		
			Roman Catholics. Catholiques Romains	Ch. of Eng-land. Eglise d'Angle-terre.	Pres-byte-riens. Pres-byté-riens.
Suicide.....	Suicide.....	5	1	2	1
Erysipelas.....	Erysipèle.....	4	2	2	
Child Birth.....	Accouchement.....	4	1	2	
Diseases of the Uterus.....	Maladies de l'utérus.....	4	1		1
Burns and Scalds.....	Brûlures.....	4		2	1
Scarlet Fever.....	Fièvre scarlatine.....	3		2	1
Septicæmia.....	Septicémie.....	3		2	
Alcoholism.....	Ivrognerie.....	3	2		1
Suffocation.....	Suffocation.....	3			2
Other Malarial Diseases.....	Malaria.....	2		1	1
Rheumatism.....	Rhumatisme.....	2		2	
Anæmia.....	Anémie.....	2		1	1
At Birth.....	A la naissance.....	2	1	1	
Other local diseases.....	Autres affections locales.....	2		1	
Railway accidents.....	Accidents par les chemins de fer.....	2	2		
Measles.....	Rougeole.....	1			
Remittent Fever.....	Fièvre remittente.....	1			
Thrush.....	Aphthes.....	1			
Purpura.....	Purpura.....	1			
Cyanosis.....	Cyanosis.....	1			
Malformations.....	Difformités.....	1			
Quinsy.....	Angine.....	1			1
Dentition.....	Dentition.....	1			
Fractures and Contusions.....	Fractures et contusions.....	1			
Gunshot and wounds.....	Blessures et armes à feu.....	1	1		
Poison.....	Empoisonnements.....	1			
Hæmorrhage.....	Hémorrhagie.....	1			
Totals.....	Totaux.....	795	170	175	165

TABLEAU II.			CITÉ D'HAMILTON.							Suite.					
RELIGIONS.			NATIONALITIES. NATIONALITÉS.					OCCUPATIONS.							
Metho- dists.	Bap- tists.	Oth- ers.	Eng- lish.	Fren- ch.	Irish.	Scot- ch.	Oth- ers.	Agri- cul- tural.	Com- mer- cial.	Do- mestic	Indus- trial.	Pro- fes- sional	La- bour- ers.	Not Classed.	
Mé- tho- distes.	Bap- tistes.	Au- tres.	Ang- lais.	Fran- çais.	Irlan- dais.	Ecos- sais.	Au- tres.	Agri- cole.	Com- mer- ciale.	Do- mesti- que.	Indus- trielle.	Pro- fession- sions.	Jour- na- liers.	Non Classé.	
1			2		1	2		1	1		2		1		31
			1		2		1		1	1	1		1		32
1			2		1		1		2		1		1		33
2			1		1	1	1	1	2	1					34
1			2		1	1			1		1		2		35
			3						2		1				36
1			2		1			1	2						37
					1	1	1		1	1			1		38
1						2	1				3				39
			1			1			1		1				40
			1		1				1		1				41
			1			1					2				42
					1		1		1		1				43
1			1		1				1	1					44
					2						2				45
1			1						1						46
1					1						1				47
1			1										1		48
		1					1				1				49
1			1		1						1				50
1								1							51
					1						1				52
1			1									1			53
	1		1						1						54
					1						1				55
1			1									1			56
		1					1							1	57
203	33	49	318	13	216	170	78	44	200	39	302	39	137	34	

TABLE II.

CITY OF HALIFAX.

			RELIGIONS.		
DISEASES IN THE ORDER OF FATALITY.		Total Deaths.	Roman Catholics.	Ch. of Eng-land.	Pres-byte-ri-ans.
MALADIES DANS L'ORDRE DE LA FATALITÉ.		Total des décès.	—	—	—
			Catho-lics Ro-mains	Eglise d'An-gle-terre.	Pres-byté-ri-ens.
Phthisis.....	Phthisie.....	105	57	23	7
Lung diseases.....	Affections pulmonaires.....	98	47	22	10
Atrophy and Debility.....	Atrophie et débilité.....	90	41	25	7
Diphtheria.....	Diphtérie.....	73	27	21	11
Epilepsy and Convulsions.....	Epilepsie et convulsions.....	73	41	19	4
Diarrhoeal Affections.....	Diarrhées.....	71	29	22	3
Cerebro Spinal Affections.....	Affections cérébro-spinales.....	60	24	23	2
Heart and Blood Vessels Diseases.....	Maladies du cœur et des vaisseaux sanguins.....	54	24	15	6
Old Age.....	Vielliesse.....	47	20	14	2
Diseases of the Urinary organs.....	Maladies des voies urinaires.....	27	9	8	4
Cancer.....	Cancer.....	24	13	4	3
Throat Affections.....	Affections de la gorge.....	23	8	6	2
Apoplexy.....	Apoplexie.....	18	7	5	.....
Whooping Cough.....	Coqueluche.....	13	7	2	.....
Enteritis and other Affections of the Bowels.....	Entérites et autres maladies d'intestins.....	13	8	.....	1
Paralysis.....	Paralysie.....	12	8	2	.....
Typhus, Enteric or Typhoid and continued fevers.....	Typhus, fièvres typhoïdes et fièvres continues.....	8	4	1	1
Fractures and contusions.....	Fractures et contusions.....	8	3	2	3
Drowning.....	Noyades.....	8	1	4	1
Hydrocephalus.....	Hydrocéphalie.....	7	1	3	.....
Stomach diseases.....	Maladies de l'estomac.....	6	4	2	.....
Peritonitis.....	Péritonite.....	6	3	3	.....
Liver diseases.....	Maladies du foie.....	6	3	2	.....
Catarrhal Affections.....	Affections catharrales.....	5	1	.....	3
Insanity.....	Folie.....	5	3	.....	.....
Suffocation.....	Suffocation.....	5	1	2	1
Other accidents.....	Autres accidents.....	5	.....	2	1

TABLEAU II. CITÉ D'HALIFAX.														
RELIGIONS.			NATIONALITIES. NATIONALITÉS.					OCCUPATIONS.						
Metho- dists.	Bap- tists.	Oth- ers.	Eng- lish.	Fren- ch.	Irish.	Scot- ch.	Oth- ers.	Agri- cul- tural.	Com- mer- cial.	Do- mestic	Indus- trial.	Pro- fes- sional	Labour- ers.	Not Classed.
Mé- tho- distes.	Bap- tistes.	Au- tres.	Ang- lais.	Fran- çais.	Irlan- dais.	Ecos- sais.	Au- tres.	Agri- cole.	Com- merciale.	Do- mestique.	Indus- trielle.	Pro- fessions.	Jour- na- liers.	Non Classé.
9	9		26	2	49	18	10	2	35	4	38	4	18	4
12	5	2	31	2	33	13	19		29	8	16	6	28	11
4	10	3	34	3	26	19	8	1	15	20	24	10	13	7
10	3	1	27	1	13	16	16	2	30	5	22	4	6	4
4	5		30	3	21	14	5	1	15	15	23	3	12	4
12	2	3	34		23	9	5		22	6	21	6	15	1
3	8		23	4	17	9	7		21	4	21	5	7	2
5	4		22		25	5	2		19	4	15	5	6	5
4	6	1	15	1	23	4	4	1	14	3	12	1	8	8
2	3	1	16		4	3	4	1	11	1	8	4	1	1
	4		10	1	9	3	1	1	8		7	1	3	4
5	2		13	1	3	2	4		10	2	8		3	
4	1	1	8		8	1	1		4		4	3	2	5
3	1		4		8		1		3		2		8	
2	2		5		4		4		8		1		3	1
1		1	3		8	1			2		4	1	2	3
	2		2		4	1	1	1	3		3		1	
				1	4	3			2		3		3	
2			6		2				3		1		3	1
1	2		2		3		2		2		3		2	
					6				2	1	2		1	
			3	1	2				1		2	1	2	
1			1	1	3	1			1		1	1	2	1
	1				1	3	1			1	3			1
	1	1			3		2				1		1	3
1			2		1	2			1		2		1	1
	2		4			1			2		1	1		1

TABLE II.

CITY OF HALIFAX.

Continued.

DISEASES IN THE ORDER OF FATALITY. — MALADIES DANS L'ORDRE DE LA FATALITÉ.			RELIGIONS.			
		Total Deaths. — Total des décès.	Roman Catholics. — Catholiques Romains	Ch. of England. — Eglise d'Angleterre.	Presbyterians. — Presbytériens.	
28	Not specified and ill-defined.	5		1	2	
29	Scarlet Fever.	4	1	2		
30	Premature Birth.	4		2		
31	Septicæmia.	3	2			
32	Scrofula and other forms of Tuberculosis.	3	2	1		
33	Other local diseases.	3	2			
34	Railway accidents.	3		2	1	
35	Puerperal Fever.	2	2			
36	Alcoholism.	2		1	1	
37	At Birth.	2	2			
38	Skin diseases.	2	1			
39	Burns and Scalds.	2		1	1	
40	Syphilis.	1		1		
41	Erysipelas.	1			1	
42	Rheumatism.	1	1			
43	Purpura.	1		1		
44	Other Constitutional Diseases.	1		1		
45	Child Birth.	1				
46	Quinsy.	1			1	
47	Diseases of the Uterus.	1			1	
48	Joint diseases.	1				
49	Gunshot and wounds.	1		1		
50	Poison.	1				
51	Infanticide.	1				
52	Suicide.	1		1		
53	Dropsy.	1	1			
Totals.		919	408	247	80	
Totaux.						

TABLEAU II. CITÉ D'HALIFAX. <i>Suite.</i>														
RELIGIONS.			NATIONALITIES. NATIONALITÉS.					OCCUPATIONS.						
Metho- dists.	Bap- tists.	Oth- ers.	Eng- lish.	Fren- ch.	Irish.	Scot- ch.	Oth- ers.	Agri- cul- tural.	Com- mer- cial.	Do- mestic	In- dus- trial.	Pro- fes- sional	La- bour- ers.	Not Classed.
Mé- tho- distes.	Bap- tistes.	Au- tres.	Ang- lais.	Fran- çais.	Irlan- dais.	Ecos- sais.	Au- tres.	Agri- cole.	Com- mer- ciale.	Do- mestique.	In- dus- trielle.	Pro- fes- sions.	Jour- na- liers.	Non Classé.
1	2		1			2	2			2	1		2	28
1			3		1				1		2		1	29
1		1	1				3		2	1	1			30
1			1	1	1				1	1			1	31
1			2		1				1		1		1	32
			1		1	1		1	1					33
			1			2			2		1			34
			1		1							1	1	35
			1		1				1					36
1			1	1	1	1				1	1		1	37
			2									1	1	38
														39
			1											40
						1						1		41
							1		1					42
							1			1				43
	1		1			1				1			1	44
														45
						1			1					46
	1		1			1		1						47
														48
			1								1			49
		1					1					1		50
														51
					1	1			1					52
									1					53
90	77	17	340	23	311	139	106	12	276	81	256	60	160	74

TABLE II.

CITY OF OTTAWA.

			RELIGIONS.		
DISEASES IN THE ORDER OF FATALITY.		Total Deaths.	Roman Catholics.	Ch. of Eng-land.	Pres-byte-rians.
MALADIES DANS L'ORDRE DE LA FATALITÉ.		Total des décès.	Catholi-ques Ro-mains	Eglise d'An-gle-terre.	Pres-byté-riens.
Diarrheal Affections	Diarrhées	159	132	15	4
Phthisis	Phthisie	102	66	16	7
Dentition	Dentition	72	64	5	1
Lung diseases	Affections pulmonaires	67	48	9	5
Atrophy and Debility	Atrophie et débilité	63	46	9	4
Heart and Blood Vessels Diseases	Maladies du cœur et des vaisseaux sanguins	40	29	2	5
Premature Birth	Naissance prématurée	34	28	2	2
Cerebro Spinal Affections	Affections cérébro-spinales	32	16	5	3
Diphtheria	Diphthérie	27	16	6	3
Old Age	Vielliesse	27	17	7	3
Enteritis and other Affections of the Bowels	Entérites et autres maladies d'intestins	27	19	4	1
Scarlet Fever	Fièvre scarlatine	24	9	1	2
Paralysis	Paralysie	22	15	4	1
Liver diseases	Maladies du foie	22	20	2	1
Cancer	Cance	17	12	2	2
Epilepsy and Convulsions	Epilepsie et convulsions	15	9	4	1
Scrofula and other forms of Tubercu-losis	Scrofules et autres formes de Tubercule	14	12	1	2
Cyanosis	Cyanosis	14	14	1	1
Diseases of the Urinary organs	Maladies des voies urinaires	12	3	3	1
Throat Affections	Affections de la gorge	11	4	5	2
Stomach diseases	Maladies de l'estomac	11	4	3	1
Dropsy	Hydropisie	11	7	2	1
Whooping Cough	Coqueluche	10	8	1	1
Abscess	Abcès	10	7	1	2
Typhus, Enteric or Typhoid and continued fevers	Typhus, fièvres typhoïdes et fièvres continues	9	2	5	2
Child Birth	Accouchement	9	7	2	1
Drowning	Noyades	8	3	2	2

TABLEAU II.

CITÉ D'OTTAWA.

RELIGIONS.			NATIONALITIES. NATIONALITÉS.					OCCUPATIONS.							
Metho- dists.	Bap- tists.	Oth- ers.	Eng- lish.	Fren- ch.	Irish.	Scot- ch.	Oth- ers.	Agri- cul- tural.	Com- mer- cial.	Do- mestic	Indus- trial.	Pro- fes- sional	La- bour- ers.	Not Classed.	
Mé- tho- distes.	Bap- tistes.	Au- tres.	Ang- lais.	Fran- çais.	Irland- ais.	Ecos- sais.	Au- tres.	Agri- cole.	Com- mer- ciale.	Do- mesti- que.	Indus- trielle.	Pro- fes- sions.	Jour- na- liers.	Non Classé.	
5	2	1	24	76	43	4	12	1	26	2	22	7	42	59	1
7	1	5	14	44	31	9	4	3	18	7	30	22	20	2	2
		2	4	48	14	1	5		11	2	18	7	34		3
2		3	7	30	22	5	3	1	15	5	16	12	15	3	4
1	1	2	7	25	25	3	3	2	10	3	15	7	20	6	5
4			5	15	18	2		5	4	2	8	5	14	2	6
1		1	2	23	5	1	3		11	1	8	4	9	1	7
5	1	2	7	12	7	4	2		6	4	6	3	12	1	8
		2	4	13	5	3	2		2	2	6	4	13		9
			5	7	14		1	4		1	6	2	11	3	10
1	2	1	6	14	5	1	1		6	2	10	2	5	2	11
		12	1	7	3	1	12		2	1	6	2	12	1	12
2		1	2	11	6	1	2	1	5		6	1	8	1	13
			7	7	7	1			3		1	1	5	12	14
1			4	6	5	2			1		7	3	6		15
	1		6	4	4		1		3	3	3	2	3	1	16
			1	4	5	4		1			2		2	9	17
			3	2	7	2								14	18
3	2		1	1	5	2	3		1		5	2	3	1	19
			3	2	3	3					3	2	5	1	20
2		1	3	4	2	1	1	1	3	1	3	1	2		21
		2	2	5	3		1	1	1	1	2	1	5		22
			1	5	3	1					1	1	7	1	23
	1		2	6		1	1		3	1	4	1	1		24
			3	1	2	2	1		3	1	3		2		25
			2	5	2				3	1		1	3	1	26
		1	1	2	1	3	1		2	1	2	1		2	27

TABLE II.

CITY OF OTTAWA.

Continued.

DISEASES IN THE ORDER OF FATALITY. — MALADIES DANS L'ORDRE DE LA FATALITÉ.		Total Deaths. — Total des décès.	RELIGIONS.		
			Roman Catholics.	Ch. of Eng- land.	Pres- byte- rians.
			— Catholiques Romains	— Eglise d'Angle- terre.	— Pres- bytériens.
28	Anæmia.....	Anémie.....	6	5	1
29	Hæmorrhage.....	Hémorrhagie.....	6	5	1
30	Measles.....	Rougeole.....	5	4	1
31	Hydrocephalus.....	Hydrocéphalie.....	5	4	
32	Not specified and ill-defined.....	Non spécifiées et indéfinies.....	5	4	
33	At Birth.....	A la naissance.....	4	1	1
34	Apoplexy.....	Apoplexie.....	4	3	1
35	Peritonitis.....	Péritonite.....	4	2	1
36	Suffocation.....	Suffocation.....	4	4	
37	Catarrhal Affections.....	Affections catharrales.....	3	3	
38	Alcoholism.....	Ivrognerie.....	3	3	
39	Rheumatism.....	Rhumatisme.....	3	3	
40	Other Constitutional Diseases.....	Autres maladies constitutionnelles.....	3	1	1
41	Fractures and Contusions.....	Fractures et contusions.....	3	2	1
42	Railway accidents.....	Accidents per les chemins de fer.....	3	1	1
43	Septicæmia.....	Septicémie.....	2	1	1
44	Malformations.....	Difformités.....	2	1	
45	Other accidents.....	Autres accidents.....	2	1	
46	Sudden (Unascertained).....	Subite—causes inconnues.....	2	2	
47	Puerperal Fever.....	Fièvres puerpérales.....	1		1
48	Thrush.....	Aphthes.....	1	1	
49	Insanity.....	Folie.....	1	1	
50	Diseases of the Uterus.....	Maladies de l'uterus.....	1	1	
51	Poison.....	Empoisonnements.....	1	1	
Totals.....		Totaux.....	943	664	62

TABLEAU II.

CITÉ D'OTTAWA.

Suite.

RELIGIONS.			NATIONALITIES. NATIONALITÉS.					OCCUPATIONS.						
Metho- dists.	Bap- tists.	Oth- ers.	Eng- lish.	Fren- ch.	Irish.	Scot- ch.	Oth- ers.	Agri- cul- tural.	Com- mer- cial.	Do- mestic	Indus- trial.	Pro- fes- sional	La- bour- ers.	Not Classed.
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mé- tho- distes.	Bap- tistes.	Au- tres.	An- glais.	Fran- çais.	Irlan- dais.	Ecos- sais.	Au- tres.	Agri- cole.	Com- mer- ciale.	Do- mestique.	Indus- trielle.	Pro- fession- sions.	Jour- na- liers.	Non Classé.
			1	3	4	1					1			5
				3	3				1		1		4	28
					1	1					5			29
														30
1			2	1	1	1			2					3
1			1	1	2		1				1		3	31
		2	1		1		2	1	1			1	1	32
														33
	1		2	1	2		2				3	1	1	34
				4							2		2	35
														36
				2	1						1		2	37
				3					2	1				38
				1	1		1						3	39
1			2		1							1	2	40
			1		1	1					1	2		41
1					1	2		1	1		1			42
			1	1	1						1		1	43
1			1									2		44
		1		1			1		1				1	45
				1	1								2	46
			1			1					1			47
								1						48
					1								1	49
				1									1	50
					1							1		51
39	12	39	141	402	270	66	64	23	147	42	211	105	283	132

TABLE II.

CITY OF ST. JOHN, N.B.

		RELIGIONS.			
DISEASES IN THE ORDER OF FATALITY.		Total Deaths.	Roman Catholics.	Ch. of Eng-land.	Pres-byte-riens.
MALADIES DANS L'ORDRE DE LA FATALITÉ.		Total des décès.	—	—	—
			Ca-tho-liques Ro-mains	Eglise d'An-terre.	Pres-byté-riens.
1	Phthisis.....	128	60	25	14
2	Lung diseases.....	118	58	26	4
3	Diarrhoeal Affections.....	49	19	16	1
4	Heart and Blood Vessels Diseases..				
	Maladies du cœur et des vaisseaux sanguins.....	47	8	9	9
5	Atrophy and Debility.....	47	13	8	9
6	Epilepsy and Convulsions.....	46	26	7	3
7	Old Age.....	40	8	15	4
8	Cerebro Spinal Affections.....	37	12	12	3
9	Throat Affections.....	35	20	5	3
10	Measles.....	27	4	5	
11	Whooping Cough.....	24	9	6	3
12	Paralysis.....	23	8	6	3
13	Diphtheria.....	18	10	5	2
14	Enteritis and other Affections of the Bowels.....				
	Entérites et autres maladies d'intestins.....	14	1	7	2
15	Diseases of the Urinary organs....	12		4	6
16	Dropsy.....	11	2	3	2
17	Typhus, Enteric or Typhoid and continued fevers ..	10	3	3	1
18	Cancer.....	7	2	2	1
19	Hydrocephalus.....	7	1	1	1
20	Catarrhal Affections.....	6	2		
21	Child Birth.....	6	3	1	
22	Apoplexy.....	6	3	2	
23	Other Accidents.....	6	1	2	2
24	Stomach diseases.....	5	2	2	
25	Drowning.....	5	1	3	
26	Liver diseases.....	4	2	1	
27	Fractures and contusions.....	4	1		1
28	Scarlet Fever.....	3			2
29	Scrofula and other forms of Tuberculosis.....				
	Scrofules et autres formes de Tubercule.....	3	1		
30	Insanity.....	3	2	1	
31	Septicæmia.....	2		1	1
32	Rheumatism.....	2		1	1
33	Premature Birth.....	2		2	
34	Dentition.....	2	2		
35	Gunshot and wounds.....	2	1		1
36	Not specified and ill-defined.....	2	1	1	
37	Puerperal Fever.....	1	1		
38	Alcoholism.....	1		1	
39	Other Constitutional Diseases ..	1	1		
40	Malformations.....	1	1		
41	Diseases of the Uterus.....	1			
42	Other local diseases.....	1		1	
43	Burns and Scalds.....	1			
44	Poison.....	1			
45	Railway accidents ..	1	1		
46	Suicide.....	1		1	
47	Abscess.....	1	1		
Totals.....		774	291	185	80
Totaux					

RELIGIONS.			NATIONALITIES. NATIONALITÉS.					OCCUPATIONS.						
Methodists.	Baptists.	Others.	English.	French.	Irish.	Scottish.	Others.	Agricultural.	Commercial.	Domestic.	Industrial.	Professional.	Laborers.	Not Classed
Méthodistes.	Baptistes.	Autres.	Anglais.	Français.	Irlandais.	Ecosais.	Autres.	Agricole.	Commerciale.	Domestique.	Industrielle.	Professions.	Journaliers.	Non Classé.
17 17 7	10 12 6	2 1	37 28 26	1 1	79 74 19	7 11 2	4 4 2	2 27 13	33 27 13	4 5	40 34 13	5 5 1	43 45 20	1 2 3
10 8 3 7 4 4 4 4 4 1	9 7 4 4 2 13 1 2	2 2 3 2 1 1 1	22 19 11 15 15 9 15 11 10 3	1 1 1 1 1	16 24 30 16 18 21 8 12 12 15	5 3 3 7 2 3 3 1 1	4 1 1 2 1 1 1	2 3 2 1 9 15 9 3 4	17 16 10 11 12 9 15 9 3 4	2 2 2 1 1 1 2 1	18 12 19 14 10 13 6 6 7 9	3 3 2 2 1 1 1	6 11 13 9 12 11 5 9 8 4	1 4 5 6 7 8 9 10 11 12 13
3 1 1	1 2	1 1	8 3 5		3 5 4	1 3 2	2 1		3 5 7	1	5 6 2	1 1 2	4	14 15 16
1 2 1 1 1 1 1 1	2 1 3 1	1	5 2 3 1 1 2 3 1 2		3 1 3 4 5 2 2 3 2 1	1 2 1 1 2 2 2 3 2 1	1		2 2 1 2 2 3 1 2	1 3 1 1 1 1	3 4 3 1 3 2 1 3 1	2 1 1 1	2 1 1 2 1 2 1 1 1	17 18 19 20 21 22 23 24 25 26 27 28
	2		1 1 1		2 2 1	1 1 1			2 1 1 1		1 1 1		1 1	29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47
			2		2			2			2			
			1	1	1				1	1		1		
			1		1									
1			1		1						1			
	1				1		1			1				
	1		1		1						1			
			1		1				1				1	
			1		1				1					
105	93	20	278	6	399	62	29	15	224	26	249	34	217	9

TABLE II.

CITY OF LONDON.

DISEASES IN THE ORDER OF FATALITY.			RELIGIONS.			
MALADIES DANS L'ORDRE DE LA FATALITÉ.			Total Deaths.	Roman Catholics.	Ch. of Eng-land.	Pres-byte-riens.
			—	—	—	—
			Total des décès.	Ca-tho-liques Ro-mains	Eglise d'An-gle-terre.	Pres-byté-riens.
1	Phthisis.....	Phthisie.....	50	6	19	7
2	Lung diseases.....	Affections pulmonaires.....	38	7	14	5
3	Old Age.....	Vieillesse.....	24	4	11	6
4	Heart and Blood Vessels Diseases.....	Maladies du cœur et des vaisseaux sanguins.....	22	1	6	8
5	Diseases of the Urinary organs.....	Maladies des voies urinaires.....	18	3	5	3
6	Diarrhoeal Affections.....	Diarrhées.....	17	3	4	2
7	Cerebro-Spinal Affections.....	Affections cérébro spinales.....	17	3	5	1
8	Paralysis.....	Paralyse.....	16	5	6	3
9	Epilepsy and Convulsions.....	Epilepsie et convulsions.....	16	1	3	2
10	Atrophy and Debility.....	Atrophie et débilité.....	16	4	6	1
11	Enteritis and other Affections of the Bowels.....	Entérites et autres maladies d'intestins.....	13	2	2	3
12	Apoplexy.....	Apoplexie.....	12	1	5	3
13	Diphtheria.....	Diphthérie.....	10	6	1	1
14	Cancer.....	Cancer.....	9	3	4	1
15	Typhus, Enteric or Typhoid and continued fevers.....	Typhus, fièvres typhoïdes et fièvres continues.....	8	1	4	.....
16	Dropsy.....	Hydropisie.....	8	1	3	2
17	Scarlet Fever.....	Fièvre scarlatine.....	6	1	3	1
18	Catarrhal Affections.....	Affections catharrales.....	6	2	2	1
19	Throat Affections.....	Affections de la gorge.....	6	2	4	.....
20	Stomach diseases.....	Maladies de l'estomac.....	5	.....	.....	2
21	Drowning.....	Noyades.....	5	.....	3	.....
22	Other Accidents.....	Autres accidents.....	5	1	.....	2
23	Not specified and ill-defined.....	Non spécifiées et indéfinies.....	4	1	1	.....
24	Septicæmia.....	Septicémie.....	2	.....	.....	2
25	Scrofula and other forms of Tuberculosis.....	Scrofules et autres formes de Tubercule.....	2	.....	.....	1
26	Other Constitutional Diseases.....	Autres maladies constitutionnelles.....	2	.....	1	.....
27	Child Birth.....	Accouchement.....	2	.....	1	.....
28	Skin diseases.....	Maladies de la peau.....	2	.....	1	.....
29	Railway accidents.....	Accidents par les chemins de fer.....	2	.....	.....	.....
30	Erysipelas.....	Erysipèle.....	1	.....	.....	.....
31	Worms and other Parasites.....	Vers et autres parasites.....	1	.....	.....	.....
32	Anæmia.....	Anémie.....	1	.....	.....	1
33	Peritonitis.....	Péritonite.....	1	.....	1	.....
34	Liver diseases.....	Maladies du foie.....	1	.....	1	.....
35	Spleen diseases.....	Maladies de la rate.....	1	.....	1	.....
36	Fractures and contusions.....	Fractures et contusions.....	1	.....	1	.....
37	Poison.....	Empoisonnements.....	1	1	.....	.....
38	Suicide.....	Suicide.....	1	.....	.....	1
39	Abscess.....	Abcès.....	1	.....	.....	.....
Totals.....			353	53	123	59

TABLEAU II. CITÉ DE LONDON.														
RELIGIONS.			NATIONALITIES. NATIONALITÉS.					OCCUPATIONS.						
Metho- dists.	Bap- tists.	Oth- ers.	Eng- lish.	Fren- ch.	Irish.	Scot- ch.	Oth- ers.	Agri- cul- tural.	Com- mer- cial.	Do- mestic	Indus- trial.	Pro- fes- sional	La- bour- ers.	Not Classed.
Mé- tho- distes.	Bap- tistes.	Au- tres.	An- glais.	Fran- çais.	Irlandais.	Ecos- sais.	Au- tres.	Agri- cole.	Com- mer- ciale.	Do- mestique.	Indus- trielle	Pro- fes- sions.	Jour- na- liers.	Non Classé.
13 9 3	5 2 1	..... ..... .....	19 17 11	..... ..... .....	13 14 6	14 6 6	4 1 1	4 1 7	3 7 3	3 2 1	16 9 5	4 2 1	19 15 7	1 2
3 5	3 1	1 1	12 6	..... .....	2 6	7 6	1	3 1	4 6	..... 1	8 6	3 1	2 2	2 1
6 5 2 7 4	2 2 3 .....	..... 1 1	8 8 4 11 11	1	7 4 8 2 2	1 1 3 2 2	..... 4 1 1 1	1 2 3	5 5 4 1 3	..... ..... ..... 1	8 4 5 3 5	..... 1 1	2 7 3 9 5	1 2 1
5 2 2	1 1 1	..... ..... 1	6 3 4	..... ..... .....	2 7 2 3	2 2 2	3	1 2 1	3 1 3	..... ..... .....	8 3 5 4	..... 1 2	1 4 3	..... 1 1
3	.....	.....	4	.....	3	.....	1	.....	2	.....	2	2	2	.....
2 1 1 3	..... ..... ..... .....	..... ..... ..... .....	5 4 3 4 3	..... ..... ..... ..... .....	2 2 2 1	1 1	..... ..... 1 1	..... ..... ..... .....	4 1 2 1 2	..... ..... ..... ..... .....	1 3 2 3 1	1 1	2 1 3 2 2	.........................
2 2 2	..... ..... .....	..... ..... .....	5 2 2	..... ..... .....	..... 1 2 1	..... 2 1	..... ..... .....	1 1 2 1	1 1	..... ..... .....	1 1 1	1 1	1 3.....	...............
1	.....	.....	1	.....	.....	1	.....	.....	.....	.....	1	1	.....	.....
1	.....	.....	2	.....	.....	.....	.....	.....	.....	.....	1	.....	1	.....
1 1 1 1	1 1 ..... .....	..... ..... ..... .....	1 1 1 1	..... ..... ..... .....	1 ..... ..... .....	..... ..... ..... .....	..... ..... 1 .....	..... ..... ..... .....	..... 1 ..... .....	..... ..... ..... .....	..... 1 ..... .....	..... ..... ..... .....	1 1 1 1	....................
1	.....	.....	1	.....	.....	1	.....	.....	1	.....	.....	.....	1	.....
.....	.....	.....	1	.....	.....	1	.....	.....	.....	.....	1	.....	.....	.....
.....	.....	.....	1	.....	.....	1	.....	.....	1	.....	.....	.....	.....	1
.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....
.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....
.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1	.....
1	.....	.....	1	.....	.....	.....	1	.....	.....	.....	.....	1	.....	.....
89	23	6	171	1	94	65	22	31	64	9	109	25	101	14

TABLE II.

CITY OF WINNIPEG.

		RELIGIONS.			
DISEASES IN THE ORDER OF FATALITY.		Total Deaths.	Roman Catholics.	Ch. of Eng-land.	Pres-byte-rians.
MALADIES DANS L'ORDRE DE LA FATALITÉ.		Total des décès.	Catholiques Romains	Eglise d'Angle-terre.	Pres-byté-riens.
1	Diarrhoeal Affections.....	69	2	23	11
2	Phthisis	39	1	10	8
3	Lung diseases.....	32	1	12	6
4	Atrophy and Debility.....	28	6	7	5
5	Typhus, Enteric or Typhoid and continued fevers.....	19	5	6	3
6	Diseases of the Urinary organs.....	19	4	5	2
7	Heart and Blood Vessels Diseases..				
8	Cerebro Spinal Affections.....	17	2	10	4
9	Enteritis and other Affections of the Bowels.....	13	1	3	2
10	Epilepsy and Convulsions.....	13	1	3	4
11	Premature Birth.....	11	1	3	...
12	Cancer.....	9		1	3
13	Drowning.....	8		4	2
14	Diphtheria.....	7		3	2
15	Other Constitutional Diseases.....	6	1	2	1
16	Peritonitis.....	6		2	2
17	Scarlet Fever.....	6			1
18	Catarrhal Affections.....	5		2	2
19	Scrofula and other forms of Tuberculosis.....	5	2	1	...
20	Old Age.....	4		2	...
21	Apoplexy.....	4			2
22	Throat Affections.....	4	1	1	...
23	Liver diseases.....	4		2	1
24	Gunshot and wounds.....	4		1	2
25	Septicæmia.....	4		1	1
26	Hydrocephalus.....	3			...
27	Paralysis.....	3	1	1	...
28	Joint diseases.....	3			...
29	Railway accidents.....	3	1	1	...
30	Erysipelas.....	3			...
31	Alcoholism.....	2	1		1
32	Child Birth.....	2			...
33	Other accidents.....	2		1	1
34	Dropsy.....	2	1		1
35	Not specified and ill-defined.....	2	1		...
36	Measles.....	1			...
37	Puerperal Fever.....	1			...
38	Rheumatism.....	1	1		...
39	Cyanosis.....	1			1
40	Insanity.....	1			1
41	Quinsy.....	1	1		...
42	Dentition.....	1			...
43	Skin diseases.....	1			...
44	Other local diseases.....	1			...
45	Burns and Scalds.....	1			1
46	Poison.....	1			...
47	Suicide.....	1			...
48	Abscess.....	1	1		...
Totals.....		376	36	107	73
Totaux.....					

TABLEAU II. CITÉ DE WINNIPEG.														
RELIGIONS.			NATIONALITIES. NATIONALITÉS.					OCCUPATIONS.						
Metho- dists.	Bap- tists.	Oth- ers.	Eng- lish.	Fren- ch.	Irish.	Scot- ch.	Oth- ers.	Agri- cul- tural.	Com- mer- cial.	Do- mestic	Indus- trial.	Pro- fes- sional	La- bour- ers.	Not Classed.
Métho- distes.	Bap- tistes.	Au- tres.	Ang- lais.	Fran- çais.	Irland- dais.	Ecos- sais.	Au- tres.	Agri- cole.	Com- merciale.	Do- mestique.	Indus- trielle.	Pro- fessions.	Jour- na- liers.	Non Classé.
9	2	22	20	.....	15	15	19	6	16	7	9	3	28	1
2	1	17	5	1	6	8	19	6	7	2	1	4	16	3
5	2	6	11	.....	7	7	7	.....	7	2	7	4	7	5
8	1	1	9	1	9	6	3	2	7	4	7	.....	7	1
3	.....	2	6	3	4	4	2	2	7	.....	3	1	6	5
5	1	2	8	1	7	2	1	3	5	2	3	1	5	6
.....	1	.....	8	2	3	4	.....	.....	5	.....	3	4	.....	.....
2	3	2	4	.....	4	2	3	.....	4	1	3	.....	3	4
.....
2	1	2	2	.....	2	6	3	1	1	1	4	2	3	1
1	2	.....	5	.....	2	1	3	.....	3	.....	4	1	3	9
.....	.....	5	3	.....	.....	3	3	.....	4	.....	4	.....	1	10
1	.....	1	4	.....	.....	3	1	3	1	1	1	1	1	11
.....	1	1	3	.....	1	2	1	1	.....	1	1	2	2	12
1	1	.....	4	.....	1	1	.....	.....	3	.....	3	.....	.....	13
.....	.....	2	2	.....	1	2	1	1	2	.....	1	.....	1	14
3	.....	2	2	.....	1	1	2	1	2	.....	1	.....	3	15
1	.....	.....	1	.....	2	2	.....	.....	2	.....	1	2	.....	16
.....	.....	2	2	.....	1	1	1	.....	1	1	.....	.....	3	17
.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	18
.....
.....
1	.....	2	1	.....	1	1	1	.....	.....	2	1	.....	1	19
.....	1	1	.....	.....	1	2	1	.....	1	.....	1	.....	1	20
.....	1	1	2	.....	2	.....	.....	.....	.....	.....	1	1	2	21
.....	1	1	1	.....	.....	3	.....	.....	1	1	2	.....	.....	22
1	.....	1	1	.....	2	1	1	.....	1	1	1	1	1	23
.....	.....	.....	1	.....	3	3	.....	2	1	.....	1	.....	.....	24
1	.....	1	.....	.....	3	.....	1	1	1	.....	.....	1	.....	25
1	.....	1	1	.....	1	1	1	.....	.....	2	1	.....	.....	26
1	.....	.....	1	1	1	.....	.....	1	1	1	.....	.....	1	27
3	.....	.....	1	1	1	.....	.....	.....	2	.....	1	.....	.....	28
.....	1	1	2	.....	1	2	.....	.....	2	.....	.....	.....	.....	29
1	1	.....	.....	.....	2	.....	.....	1	.....	1	.....	.....	.....	30
.....	.....	.....	.....	.....	1	1	.....	.....	1	1	.....	.....	.....	31
2	.....	.....	2	.....	.....	.....	.....	.....	2	.....	.....	.....	.....	32
.....	.....	1	.....	.....	1	1	.....	.....	1	.....	.....	.....	1	33
.....	.....	.....	.....	.....	1	1	.....	1	1	.....	.....	.....	.....	34
1	.....	.....	.....	.....	1	.....	1	.....	1	.....	.....	.....	.....	35
1	.....	1	.....	.....	.....	1	1	.....	.....	.....	.....	.....	1	36
.....	.....	.....	.....	.....	1	1	.....	.....	1	.....	.....	.....	.....	37
.....	.....	.....	.....	.....	1	1	.....	.....	1	.....	.....	.....	.....	38
.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....	39
.....	.....	.....	.....	.....	1	1	.....	.....	.....	.....	1	.....	.....	40
1	.....	1	.....	.....	1	.....	1	.....	.....	.....	1	.....	.....	41
1	.....	.....	.....	.....	1	.....	.....	1	1	.....	.....	.....	.....	42
1	.....	.....	.....	.....	1	.....	.....	1	.....	.....	.....	.....	.....	43
.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	44
1	.....	.....	1	.....	.....	1	.....	.....	1	.....	1	.....	.....	45
.....	1	.....	.....	.....	.....	.....	1	.....	1	.....	.....	.....	.....	46
.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....	1	.....	.....	47
58	20	82	114	10	85	90	77	32	98	30	68	29	98	21

TABLE II.

CITY OF KINGSTON.

DISEASES IN THE ORDER OF FATALITY. — MALADIES DANS L'ORDRE DE LA FATALITÉ.		Total Deaths. — Total des décès.	RELIGIONS.		
			Roman Catholics. — Catholiques Romains	Ch. of Eng- land. — Eglise d'An- gle- terre.	Pres- byte- rians. — Pres- byté- riens.
1 Phthisis.....	Phthisie	44	26	7	5
2 Atrophy and Debility.....	Atrophie et débilité.....	44	10	10	8
3 Old Age.....	Vielliesse	30	23	4	.....
4 Lung diseases.....	Affections pulmonaires	30	14	2	3
5 Heart and Blood Vessels Diseases.....	Maladies du cœur et des vaisseaux sanguins	22	5	4	5
6 Diarrhoeal Affections.....	Diarrhées.....	14	.....	4	3
7 Enteritis and other Affections of the Bowels.....	Entérites et autres maladies d'in- testins	14	1	5	4
8 Cerebro Spinal Affections.....	Affections cérébro-spinales.....	13	1	5	2
9 Epilepsy and Convulsions.....	Epilepsie et convulsions.....	13	.....	11	1
10 Diphtheria.....	Diphthérie	11	.....	3	5
11 Typhus, Enteric or Typhoid and continued fevers	Typhus, fièvres typhoïdes et fièvres continues	11	3	2	3
12 Paralysis.....	Paralysie	10	3	2	.....
13 Cancer.....	Cancer.....	9	4	1	2
14 Diseases of the Urinary organs.....	Maladies des voies urinaires.....	9	2	2	4
15 Other accidents.....	Autres accidents	5	1	1	1
16 Throat Affections	Affections de la gorge.....	4	2	.....	1
17 Scarlet Fever.....	Fièvre scarlatine.....	3	1	2	.....
18 Stomach diseases.....	Maladies de l'estomac.....	3	.....	1	.....
19 Drowning	Noyades	3	.....	2	.....
20 Dropsy.....	Hydropisie	3	.....	1	1
21 Not specified and ill-defined.....	Non spécifiées et indéfinies.....	3	1	1	.....
22 Catarrhal Affections	Affections catharrales.....	2	.....	1	.....
23 Other Constitutional Diseases	Autres maladies constitutionnelles.....	2	.....	1	1
24 Apoplexy.....	Apoplexie.....	2	.....	.....	1
25 Dentition.....	Dentition	2	.....	.....	.....
26 Abscess.....	Abcès	2	.....	1	1
27 Other Malarial Diseases.....	Malaria	1	.....	.....	1
28 Rheumatism.....	Rhumatisme.....	1	.....	1	.....
29 Insanity.....	Folie.....	1	1	.....	.....
30 Liver diseases.....	Maladies du foie.....	1	.....	.....	1
31 Fractures and contusions	Fractures et contusions.....	1	1	.....	.....
32 Gunshot and wounds.....	Blessures et armes à feu.....	1	.....	.....	1
33 Suffocation.....	Suffocation	1	.....	1	.....
34 Railway Accidents.....	Accidents par les chemins de fer.....	1	.....	.....	1
35 Suicide.....	Suicide.....	1	.....	1	.....
36 Hemorrhage.....	Hémorrhagie	1	1	.....	.....
Totals	Totaux.....	318	100	76	55

TABLEAU II. CITÉ DE KINGSTON.														
RELIGIONS.			NATIONALITIES. NATIONALITÉS.					OCCUPATIONS.						
Metho- dists.	Bap- tists.	Oth- ers.	Eng- lish.	Fren- ch.	Irish.	Scot- ch.	Oth- ers.	Agri- cultural.	Com- mer- cial.	Do- mestic	Indus- trial.	Pro- fes- sional	La- bour- ers.	Not Classed.
Mé- tho- distes.	Bap- tistes.	Au- tres.	An- glais.	Fran- çais.	Irlan- dais.	Ecos- sais.	Au- tres.	Agri- cole.	Com- mer- ciale.	Do- mesti- que.	Indus- trielle	Pro- fession- sions.	Jour- na- liers.	Non Classé.
5	1	9	3	24	6	2	2	11	.....	10	5	13	3
12	1	3	17	1	20	6	.....	1	13	3	10	2	12	3
3	6	2	22	.....	.....	1	2	4	3	.....	17	3
7	1	3	10	2	12	4	2	.....	9	2	8	2	7	2
8	7	.....	9	4	2	1	7	1	6	3	4	.....
5	2	8	.....	4	2	.....	.....	3	2	6	1	1	1
3	1	3	.....	8	3	.....	.....	2	1	6	1	4	.....
4	1	.....	8	.....	5	.....	.....	.....	4	2	3	2	2	.....
1	9	.....	3	.....	1	.....	3	.....	3	.....	3	4
2	1	5	.....	4	2	.....	.....	3	.....	5	2	1	.....
3	4	.....	5	1	1	1	7	1	2	.....	.....	.....
2	3	1	1	6	1	1	.....	2	.....	3	1	2	2
1	1	.....	4	1	4	.....	.....	.....	4	.....	3	.....	1	1
1	4	.....	4	1	.....	1	4	1	2	.....	1	.....
1	1	2	1	1	1	.....	.....	1	.....	2	1	1	.....
1	1	.....	2	.....	1	.....	1	.....	1	.....	2	.....
1	1	2	.....	1	.....	.....	.....	1	.....	2	.....	.....	.....
1	2	.....	1	1	.....	.....	1	.....	1	.....	1	.....
1	1	.....	2	1	.....	.....	.....	.....	2	.....	1	.....
1	1	.....	2	.....	.....	.....	1	.....	1	.....	2	.....
.....	1	.....	1	1	.....	1	1	1	.....	.....	.....	1	.....
1	1	.....	1	.....	.....	.....	2	.....	.....	.....
.....	1	.....	1	.....	.....	.....	2	.....	2	.....	.....	.....
.....	1	1	.....	1	.....	.....	.....	.....	.....	2	.....	.....	.....
2	1	.....	1	.....	.....	.....	1	.....	.....	1
.....	1	1	.....	.....	.....	.....	1	.....	1	1
.....	1	.....	.....	.....	.....	.....	1	.....	.....	.....
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
.....	1	.....	.....	.....	.....	.....	.....	.....	1
.....
.....	1	.....	.....	.....	.....	.....	.....	1	.....	.....	.....
.....	1	.....	.....	.....	1	.....	.....	.....	1	.....
.....
.....	1	.....	.....	.....	.....	.....	.....	.....	.....
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....
.....	1	.....	.....	.....	.....	.....	.....	1	.....	.....	.....
65	4	18	108	14	147	36	13	8	82	17	87	21	80	23

TABLE II.

CITY OF VICTORIA, B.C.

DISEASES IN THE ORDER OF FATALITY. MALADIES DANS L'ORDRE DE LA FATALITÉ.		Total Deaths. — Total des décès.	RELIGIONS.			
			Roman Catholics.	Ch. of Eng- land.	Pres- byte- rians.	
			—	—	—	
			Catho- liques Ro- mains	Eglise d'An- gle- terre.	Pres- byté- riens.	
1	Lung diseases	Affections pulmonaires	47	6	14	8
2	Phthisis	Phthisie	36	6	6	3
3	Heart and Blood Vessels Diseases . .	Maladies du cœur et des vaisseaux sanguins	29	5	7	4
4	Diarrhœal Affections	Diarrhées	24	7	10	
5	Enteritis and other Affections of the Bowels	Entérites et autres maladies d'in- testins	17	5	3	1
6	Epilepsy and Convulsions	Epilepsie et convulsions	14	2	6	4
7	Typhus, Enteric or Typhoid and continued fevers	Typhus, fièvres typhoïdes et fièvres continues	13	3	3	
8	Cerebro Spinal Affections	Affections cérébro-spinales	13	2	3	4
9	Cancer	Cancer	11	1	4	3
10	Old Age	Vieillesse	11	2	5	1
11	Drowning	Noyades	9	1	3	2
12	Premature Birth	Naissance prématurée	8	1	1	3
13	Paralysis	Paralytie	8	1	4	2
14	Diseases of the Urinary organs	Maladies des voies urinaires	8		2	2
15	Atrophy and Debility	Atrophie et débilité	7		2	3
16	Dentition	Dentition	6		3	
17	Dropsy	Hydropisie	6	1	3	1
18	Septicæmia	Septicémie	5	1	2	
19	Fractures and contusions	Fractures et contusions	5		1	1
20	Measles	Rougeole	4	1	2	
21	Whooping Cough	Coqueluche	4		2	
22	Suffocation	Suffocation	4	4		
23	Suicide	Suicide	4		2	1
24	Not specified and ill-defined	Non spécifiées et indéfinies	4	2	1	1
25	Alcoholism	Ivrognerie	3	1	1	
26	Rheumatism	Rhumatisme	3			
27	Child Birth	Accouchement	3	1		1
28	Liver diseases	Maladies du foie	3		2	1
29	Apoplexy	Apoplexie	2		2	
30	Throat Affections	Affections de la gorge	2		2	
31	Stomach Diseases	Maladies de l'estomac	2	1	1	
32	Railway accidents	Accidents par les chemins de fer . .	2	1		
33	Diphtheria	Diphthérie	1			
34	Syphilis	Syphilis	1		1	
35	Hydrocephalus	Hydrocéphalie	1			
36	Malformations	Difformités	1			
37	Quinsy	Angine	1			
38	Burns and Scalds	Brûlures	1			
39	Other accidents	Autres accidents	1			1
40	Abscess	Abcès	1	1		
41	Hæmorrhage	Hémorrhagie	1			
Totals		Totaux	326	56	98	47

TABLEAU II. CITÉ DE VICTORIA, C.B.															
RELIGIONS.			NATIONALITIES. NATIONALITÉS.					OCCUPATIONS.							
Me- tho- dists.	Bap- tists.	Oth- ers.	Eng- lish.	Fren- ch.	Irish.	Scot- ch.	Oth- ers.	Agri- cul- tural.	Com- mer- cial.	Do- mestic	In- dus- trial.	Pro- fes- sional	La- bour- ers.	Not Classed.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Mé- tho- distes.	Bap- tistes.	Au- tres.	An- glais.	Fran- çais.	Irlan- dais.	Ecos- sais.	Au- tres.	Agri- cole.	Com- mer- ciale.	Do- mesti- que.	In- dus- trielle	Pro- fes- sions.	Jour- na- liers.	Non Classé.	
10	1	8	17	.....	8	9	13	5	12	4	16	3	6	1	1
9	2	10	13	.....	1	3	19	3	11	4	9	2	7	.....	2
3	1	9	11	1	3	4	10	5	6	4	6	.....	7	1	3
4	1	2	13	2	4	.....	5	1	9	.....	10	1	3	.....	4
4	1	3	6	.....	4	3	4	.....	5	2	5	.....	5	.....	5
2	.....	.....	9	.....	3	2	.....	.....	8	3	2	1	.....	.....	6
5	2	.....	6	.....	4	1	2	.....	8	.....	2	.....	3	.....	7
4	.....	.....	6	1	1	4	1	1	4	1	5	.....	2	.....	8
3	.....	.....	6	.....	.....	4	3	.....	4	.....	5	1	1	.....	9
2	1	.....	7	.....	1	.....	1	1	2	1	5	1	1	.....	10
2	1	.....	5	.....	2	1	1	.....	5	.....	3	.....	1	.....	11
3	.....	.....	4	.....	1	3	.....	.....	2	.....	4	1	.....	1	12
1	.....	.....	5	.....	.....	2	1	2	.....	2	2	2	.....	.....	13
2	.....	4	2	.....	.....	1	5	.....	3	.....	.....	1	4	.....	14
2	.....	.....	5	.....	.....	2	.....	2	.....	.....	3	1	1	.....	15
2	.....	1	1	.....	2	.....	3	.....	2	2	2	.....	.....	.....	16
1	.....	.....	4	.....	1	1	.....	1	.....	2	2	1	.....	.....	17
.....	.....	2	2	.....	.....	.....	3	1	1	.....	1	.....	2	.....	18
2	.....	1	4	.....	.....	.....	1	.....	2	.....	3	.....	.....	.....	19
1	1	.....	3	.....	.....	.....	1	.....	4	.....	.....	.....	.....	.....	20
.....	.....	1	3	.....	.....	.....	1	.....	.....	1	2	.....	.....	1	21
.....	.....	.....	.....	.....	2	1	1	.....	4	.....	.....	.....	.....	.....	22
.....	.....	1	1	.....	1	1	1	.....	1	1	.....	.....	2	.....	23
.....	.....	.....	2	.....	1	.....	1	.....	2	.....	2	.....	.....	.....	24
1	.....	.....	2	.....	.....	.....	1	.....	2	.....	1	.....	.....	.....	25
2	.....	1	.....	.....	.....	1	2	.....	.....	1	1	.....	1	.....	26
1	.....	.....	2	.....	.....	.....	1	.....	2	1	.....	.....	.....	.....	27
.....	.....	.....	2	.....	.....	1	.....	.....	1	1	1	.....	.....	.....	28
.....	.....	.....	2	.....	.....	.....	.....	.....	1	.....	1	.....	.....	.....	29
.....	.....	.....	1	.....	.....	.....	1	.....	.....	.....	1	.....	1	.....	30
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	31
1	.....	.....	1	.....	1	1	.....	.....	2	1	.....	.....	.....	.....	32
1	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	33
.....	.....	.....	1	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	34
.....	.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....	35
1	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	36
.....	.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....	37
.....	.....	1	.....	.....	.....	.....	1	.....	.....	1	.....	.....	.....	.....	38
.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	39
.....	.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....	40
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	41
67	11	47	150	4	41	45	86	22	106	33	96	15	50	4	

TABLE II.

CITY OF BRANTFORD.

DISEASES IN THE ORDER OF FATALITY. MALADIES DANS L'ORDRE DE LA FATALITÉ.		Total Deaths. — Total des décès.	RELIGIONS.		
			Roman Catholics.	Ch. of Eng- land.	Pres- byte- rians.
			— Catholiques Romaines	— Eglise d'Angle- terre.	— Pres- bytériens.
1	Diarrhoeal Affections.....	Diarrhées.....	22	6	3
2	Phthisis.....	Phthisie.....	21	5	2
3	Lung diseases.....	Affections pulmonaires.....	13	3	1
4	Old Age.....	Vieillesse.....	12	1	1
5	Epilepsy and Convulsions.....	Epilepsie et convulsions.....	10	1	2
6	Heart and Blood Vessels Diseases.....	Maladies du cœur et des vaisseaux sanguins.....	10	2	1
7	Enteritis and other Affections of the Bowels.....	Entérites et autres maladies d'in- testins.....	9	1	2
8	Typhus, Enteric or Typhoid and continued fevers.....	Typhus, fièvres typhoïdes et fièvres continues.....	8	1	3
9	Cerebro Spinal Affections.....	Affections cérébro-spinales.....	8	1	2
10	Cancer.....	Cancer.....	7		1
11	Child Birth.....	Accouchement.....	6	1	1
12	Diseases of the Urinary organs.....	Maladies des voies urinaires.....	6	2	1
13	Apoplexy.....	Apoplexie.....	5	1	2
14	Throat Affections.....	Affections de la gorge.....	5	3	
15	Premature Birth.....	Naissance prématurée.....	4		1
16	Paralysis.....	Paralysie.....	4	1	1
17	Atrophy and Debility.....	Atrophie et débilité.....	4	3	
18	Stomach diseases.....	Maladies de l'estomac.....	3	1	
19	Dropsy.....	Hydropisie.....	3	1	
20	Diphtheria.....	Diphthérie.....	2	1	
21	Whooping Cough.....	Coqueluche.....	2		
22	Erysipelas.....	Erysipèle.....	2	1	
23	Scrofula and other forms of Tuber- culosis.....	Scrofules et autres formes de Tuber- cule.....	2	1	
24	Hydrocephalus.....	Hydrocéphalie.....	2	1	
25	Scarlet Fever.....	Fièvre scarlatine.....	1	1	
26	Catarrhal Affections.....	Affections catharrales.....	1		
27	Remittent Fever.....	Fièvre remittente.....	1	1	
28	Other Malarial Diseases.....	Malaria.....	1		
29	Septicemia.....	Septicémie.....	1		
30	Rheumatism.....	Rhumatisme.....	1		1
31	Liver Diseases.....	Maladies du foie.....	1	1	
32	Joint diseases.....	Maladies des articulations.....	1	1	
33	Fractures and contusions.....	Fractures et contusions.....	1		
34	Drowning.....	Noyades.....	1	1	
35	Abscess.....	Abcès.....	1		
Totals.....		Totaux.....	181	29	23

TABLEAU II. CITÉ DE BRANTFORD.															
RELIGIONS.			NATIONALITIES. NATIONALITÉS.					OCCUPATIONS.							
Me-tho-dists.	Bap-tists.	Oth-ers.	Eng-lish.	Fren-ch.	Irish.	Scot-ch.	Oth-ers.	Agri-cultural.	Com-mercial.	Do-mestic.	In-dus-trial.	Pro-fes-sional.	La-bour-ers.	Not Classed.	
Mé-tho-distés.	Bap-tistes.	Au-tres.	An-glais.	Fran-çais.	Irlan-dais.	Ecos-sais.	Au-tres.	Agri-cole.	Com-merciale.	Do-mestique.	In-dus-trielle.	Pro-fessions.	Jour-na-liers.	Non Classé.	
8			12		2	2	6	1	3		11		7		1
6	7		6		6	6	3		4		10	1	6		2
5	3	1	6		2	3	2		1		6	2	3	1	3
5	4	1	3		3	3	3	4	1		4		2	1	4
3	1	1	6			1	3			1	7		2		5
4	2		6		2	2		1	1		8				6
1	4		5		2		2	2			3		4		7
2	1	1	2		1	4	1		4		2	1	1		8
4	1		3	1	1	2	1		2		4	1		1	9
3	3		4			2	1		2		2	1	1	1	10
2	2				4	1	1				6				11
3			1		4	1		1	1		1	1	2		12
1		1	2		1	1	1	2	2		1				13
2			2		3						4		1		14
3			2			1	1				3		1		15
1		1	1		1		2		1		2		1		16
		1			2	1	1		1	1			2		17
2			3						1		1			1	18
	1	1	3								1		1	1	19
1			1			1					1	1			20
1	1		2						1		1				21
1			1		1			1			1				22
1			1				1		2						23
1					1		1			1		1			24
					1				1					1	25
					1		1				1				26
															27
		1			1						1				28
1					1		1		1				1		29
					1								1		30
					1				1						31
1			1										1		32
													1		33
					1									1	34
	1		1					1							35
63	31	9	74	1	43	31	32	13	30	3	81	9	39	6	

TABLE II.

CITY OF CHARLOTTETOWN.

			RELIGIONS.		
DISEASES IN THE ORDER OF FATALITY.		Total Deaths.	Roman Catholics.	Ch. of Eng-land.	Pres-byte-rians.
MALADIES DANS L'ORDRE DE LA FATALITÉ.		Total des décès.	—	—	—
			Catho- liques Ro- mains	Eglise d'An- gle- terre.	Pres- byté- riens.
Phthisis.....	Phthisie.....	24	8	3	5
Lung diseases.....	Affections pulmonaires.....	24	13	4	1
Diarrhoeal Affections.....	Diarrhées.....	18	13	3	1
Atrophy and Debility.....	Atrophie et débilité.....	14	1	2	4
Heart and Blood Vessels Diseases..	Maladies du cœur et des vaisseaux sanguins.....	9	3	1	1
Old Age.....	Vielliesse.....	8	4	.....	1
Catarrhal Affections.....	Affections catharrales.....	7	1	1	.....
Typhus, Enteric or Typhoid and continued fevers.....	Typhus, fièvres typhoïdes et fièvres continues.....	7	1	1	.....
Diseases of the Urinary organs.....	Maladies des voies urinaires.....	7	3	.....	1
Epilepsy and Convulsions.....	Epilepsie et convulsions.....	6	4	.....	2
Throat Affections.....	Affections de la gorge.....	5	.....	.....	3
Enteritis and other Affections of the Bowels.....	Entérites et autres maladies d'in- testins.....	5	2	2	.....
Not specified and ill-defined.....	Non spécifiées et indéfinies.....	5	1	.....	1
Cerebro Spinal Affections.....	Affections cérébro-spinales.....	4	1	.....	.....
Apoplexy.....	Apoplexie.....	4	.....	.....	3
Paralysis.....	Paralysie.....	4	4	.....	.....
Cancer.....	Cancer.....	3	1	2	.....
Dropsy.....	Hydropisie.....	3	1	.....	1
Rheumatism.....	Rhumatisme.....	2	1	.....	.....
Insanity.....	Folie.....	2	.....	.....	.....
Stomach diseases.....	Maladies de l'estomac.....	2	1	1	.....
Other accidents.....	Autres accidents.....	2	1	.....	1
Scarlet Fever.....	Fièvre scarlatine.....	1	1	.....	.....
Septicæmia.....	Septicémie.....	1	1	.....	.....
Hydrocephalus.....	Hydrocéphalie.....	1	.....	.....	.....
Child Birth.....	Accouchement.....	1	1	.....	.....
Liver diseases.....	Maladies du foie.....	1	.....	.....	.....
Diseases of the Uterus.....	Maladies de l'utérus.....	1	.....	.....	.....
Drowning.....	Noyades.....	1	1	.....	.....
Totals.....	Totaux.....	172	68	20	25

TABLEAU II. CITÉ DE CHARLOTTETOWN.															
RELIGIONS.			NATIONALITIES. NATIONALITÉS.					OCCUPATIONS.							
Metho- dists.	Bap- tists.	Oth- ers.	Eng- lish.	Fren- ch.	Irish.	Scot- ch.	Oth- ers.	Agri- cul- tural.	Com- mer- cial.	Do- mestic	Indus- trial.	Pro- fes- sional	La- bour- ers.	Not Classed.	
Mé- tho- distes.	Bap- tistes.	Au- tres.	Ang- lais.	Fran- çais.	Irlan- dais.	Ecos- sais.	Au- tres.	Agri- cole.	Com- merciale.	Domestique.	Indus- trielle	Pro- fession- sions.	Jour- na- liers.	Non Classé.	
6	1	1	10	1	6	7	.....	1	4	3	6	1	9	.....	1
2	2	2	6	.....	14	4	.....	1	3	.....	7	1	9	.....	2
1	.....	.....	4	1	9	4	.....	.....	5	.....	1	.....	11	3	3
4	2	1	11	.....	.....	3	.....	.....	6	3	4	.....	.....	1	4
3	1	.....	5	.....	2	2	.....	2	4	.....	1	.....	2	.....	5
2	.....	1	2	.....	5	1	.....	2	2	.....	3	.....	.....	1	.....
4	.....	1	4	.....	2	1	.....	.....	2	.....	3	.....	2	.....	7
5	.....	.....	3	.....	1	2	1	.....	.....	.....	4	1	2	.....	8
3	.....	.....	3	.....	2	2	.....	1	3	.....	.....	.....	2	1	9
.....	.....	.....	.....	.....	3	1	.....	.....	3	.....	2	.....	1	.....	10
2	.....	.....	3	.....	.....	2	.....	.....	1	.....	2	1	.....	1	11
1	.....	.....	1	.....	3	1	.....	.....	.....	.....	3	.....	1	1	12
3	.....	.....	3	.....	.....	2	.....	1	.....	.....	3	.....	1	.....	13
2	1	.....	3	.....	.....	1	.....	.....	2	.....	2	.....	.....	.....	14
1	.....	.....	1	.....	.....	3	.....	1	1	1	.....	1	.....	.....	15
.....	.....	.....	.....	.....	4	.....	.....	1	.....	.....	.....	.....	1	2	16
1	.....	.....	1	.....	.....	1	1	1	1	.....	1	.....	1	.....	17
.....	.....	.....	.....	.....	1	1	1	1	1	.....	.....	.....	.....	1	18
1	.....	.....	1	.....	.....	1	.....	.....	.....	.....	.....	.....	1	1	19
2	.....	.....	1	.....	.....	1	.....	.....	2	.....	.....	.....	.....	.....	20
.....	.....	.....	1	.....	1	.....	.....	.....	1	.....	.....	.....	1	.....	21
.....	.....	.....	.....	.....	1	1	.....	.....	1	.....	1	.....	.....	.....	22
.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1	.....	23
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	24
.....	1	.....	1	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	25
1	.....	.....	1	.....	.....	.....	.....	.....	1	.....	1	.....	.....	.....	26
.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	27
1	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	1	.....	.....	.....	28
.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	29
45	8	6	67	3	55	44	3	12	42	7	47	5	45	14	

TABLE II.

CITY OF HULL.

DISEASES IN THE ORDER OF FATALITY. — MALADIES DANS L'ORDRE DE LA FATALITÉ.		Total Deaths. — Total des décès.	RELIGIONS.			
			Roman Catholics.	Ch. of Eng- land.	Pres- byte- rians.	
			—	—	—	
			Catholics Romaines	Eglise d'Angle- terre.	Pres- byte- riens.	
1	Atrophy and Debility.....	Atrophie et débilité.....	146	144	.....	1
2	Dentition	Dentition	31	30	1	.....
3	Diphtheria	Diphthérie.....	28	28	.....	.....
4	Lung diseases	Affections pulmonaires.....	23	21	2	.....
5	Phthisis	Phthisie.....	17	16	.....	1
6	Throat Affections.....	Affections de la gorge.....	10	10	.....	.....
7	Paralysis	Paralysie.....	9	9	.....	.....
8	Cerebro Spinal Affections.....	Affections cérébro-spinales.....	7	5	2	.....
9	Enteritis and other Affections of the Bowels.....	Entérites et autres maladies d'in- testins.....	7	6	1	.....
10	Other accidents.....	Autres accidents	7	7	.....	.....
11	Child Birth	Accouchement.....	6	6	.....	.....
12	Diarrhoeal Affections	Diarrhées.....	5	4	.....	1
13	Old Age.....	Vieillesse.....	5	5	.....	.....
14	Dropsy.....	Hydropisie.....	4	4	.....	.....
15	Not specified and ill-defined..	Non spécifiées et indéfinies.....	4	4	.....	.....
16	Heart and Blood Vessels Diseases..	Maladies du cœur et des vaisseaux sanguins.....	3	2	.....	1
17	Stomach diseases.....	Maladies de l'estomac.....	3	2	.....	1
18	Liver diseases.....	Maladies du foie.....	3	3	.....	.....
19	Drowning.....	Noyades.....	3	3	.....	.....
20	Abscess.....	Abcès.....	3	3	.....	.....
21	Typhus, Enteric or Typhoid and continued fevers.....	Typhus, fièvres typhoïdes et fièvres continues.....	2	2	.....	.....
22	Whooping Cough.....	Coqueluche	2	2	.....	.....
23	Cancer.....	Cancer.....	2	2	.....	.....
24	Epilepsy and Convulsions	Epilepsie et convulsions	2	.....	2	.....
25	Diseases of the Urinary organs..	Maladies des voies urinaires.....	2	2	.....	.....
26	Scarlet Fever.....	Fièvre scarlatine.....	1	.....	1	.....
27	Catarrhal Affections.....	Affections catharrales.....	1	.....	.....	.....
28	Rheumatism.....	Rhumatisme.....	1	1	.....	.....
29	Other local diseases.....	Autres affections locales.....	1	.....	.....	1
30	Hemorrhage.....	Hémorrhagie.....	1	1	.....	.....
Totals.....		Totaux.....	339	322	9	6

TABLEAU II.															CITÉ DE HULL.														
RELIGIONS.			NATIONALITIES. NATIONALITÉS.					OCCUPATIONS.																					
Metho- dists.	Bap- tists.	Oth- ers.	Eng- lish.	Fren- ch.	Irish.	Scot- ch.	Oth- ers.	Agri- cul- tural.	Com- mer- cial.	Do- mestic.	In- dus- trial.	Pro- fes- sional.	La- bour- ers.	Not Classed.															
Mé- tho- distes.	Bap- tistes.	Au- tres.	An- glais.	Fran- çais.	Irlan- dais.	Ecos- sais.	Au- tres.	Agri- cole.	Com- mer- ciale.	Do- mesti- que.	In- dus- trielle.	Pro- fes- sions.	Jour- na- liers.	Non Classé.															
	1		12	132			2		8		5	3	125	5															
			2	27			2		1		3		25	2															
			4	24									27	1															
			5	18					2		2		17	2															
			3	14				1			2	1	10	3															
				10					1		1		8																
				9									4	5															
			2	5					1		1	1	4																
			1	6						1			5	1															
			1	6					1		2		4																
				6							1		5																
			1	3		1				1			4																
				5										5															
				4									3	1															
				4					1				2	1															
				2		1							2	1															
				2		1			1		1		1																
				3									1	2															
				3							1		2																
				3							1		2																
				2									2																
			1	1							1		1																
				2									1	1															
			2										1																
				2									1	1															
			1										1																
	1					1			1																				
				1									1																
					1								1																
				1										1															
	2		35	295	1	4	4	1	17	2	21	5	260	33															

TABLE II.

CITY OF GUELPH.

DISEASES IN THE ORDER OF FATALITY.			RELIGIONS.			
MALADIES DANS L'ORDRE DE LA FATALITÉ.			Total Deaths.	Roman Catholics.	Ch. of Eng-land.	Pres-byte-riens.
			—	—	—	—
			Total des décès.	Ca-tho-liques Ro-mains	Eglise d'An-gle-terre.	Pres-byté-riens.
1	Diphtheria.....	Diphtérie.....	38	8	2	13
2	Lung diseases.....	Affections pulmonaires.....	24	6	3	4
3	Old Age.....	Vieillesse.....	13	2	4	3
4	Atrophy and Debility.....	Atrophie et débilité	13	2	1	3
5	Diarrhoeal Affections	Diarrhées.....	11	1	.....	3
6	Phthisis.....	Phthisie.....	9	3	1	3
7	Heart and Blood Vessels Diseases..	Maladies du cœur et des vaisseaux sanguins	8	.....	2	3
8	Enteritis and other Affections of the Bowels	Entérites et autres maladies d'intestins	6	1	1	2
9	Diseases of the Urinary organs.....	Maladies des voies urinaires.....	5	.....	1	2
10	Cancer	Cancer	4	.....	1	1
11	Cerebro Spinal Affections.....	Affections cérébro-spinales	4	2	.....	.....
12	Apoplexy.....	Apoplexie	4	.....	.....	1
13	Paralysis.....	Paralytie.....	4	.....	1	.....
14	Epilepsy and Convulsions	Epilepsie et convulsions.....	4	.....	1	2
15	Typhus, Enteric or Typhoid and continued fevers.....	Typhus, fièvres typhoïdes et fièvres continues.....	2	.....	1	.....
16	Child Birth.....	Accouchement.....	2	1	1	.....
17	Liver diseases.....	Maladies du foie.....	2	.....	.....	.....
18	Diseases of the Uterus.....	Maladies de l'utérus.....	2	.....	1	.....
19	Rheumatism.....	Rhumatisme.....	1	.....	1	.....
20	Purpura.....	Purpura.....	1	.....	1	.....
21	Anæmia.....	Anémie.....	1	.....	.....	1
22	Hydrocephalus.....	Hydrocéphalie.....	1	.....	.....	.....
23	Other Constitutional Diseases.....	Autres maladies constitutionnelles.....	1	.....	1	.....
24	Stomach diseases.....	Maladies de l'estomac.....	1	.....	.....	1
25	Other accidents	Autres accidents.....	1	.....	.....	.....
Totals.....			162	27	24	42

TABLEAU II. CITÉ DE GUELPH.														
RELIGIONS.			NATIONALITIES. NATIONALITÉS.					OCCUPATIONS.						
Metho- dists.	Bap- tists.	Oth- ers.	Eng- lish.	Fren- ch.	Irish.	Scot- ch.	Oth- ers.	Agri- cul- tural.	Com- mer- cial.	Do- mestic	Indus- trial.	Pro- fes- sional	La- bour- ers.	Not Classed.
Métho- distes.	Bap- tistes.	Au- tres.	Ang- lais.	Fran- çais.	Irland- dais.	Ecos- sais.	Au- tres.	Agri- cole.	Com- mer- ciale.	Do- mesti- que.	Indus- trielle	Pro- fession- sions.	Jour- na- liers.	Non Classé.
11	2	2	13	.....	8	15	2	4	10	.....	20	1	3	..... 1
9	1	1	8	.....	6	7	3	3	3	2	7	.....	6	..... 2
3	1	.....	8	.....	2	2	1	1	.....	1	4	.....	5	..... 3
5	.....	2	4	.....	2	3	4	1	4	.....	7	.....	1	..... 4
4	2	1	5	.....	2	2	4	1	1	.....	6	.....	3	..... 5
.....	1	1	3	.....	2	4	.....	1	1	1	3	1	2	..... 6
2	.....	1	4	.....	.....	3	1	.....	3	.....	2	2	.....	1 7
2	.....	.....	4	.....	2	.....	.....	2	2	.....	2	.....	.....	8
1	.....	1	3	.....	1	1	.....	1	1	.....	2	.....	.....	9
1	.....	1	3	.....	.....	1	.....	1	1	.....	1	.....	.....	10
1	1	.....	2	.....	1	.....	1	.....	1	.....	1	.....	2	11
2	.....	1	3	.....	.....	1	.....	.....	1	.....	1	.....	.....	12
1	1	.....	3	.....	.....	.....	1	.....	.....	.....	3	.....	.....	13
1	.....	.....	2	.....	.....	1	1	.....	.....	.....	2	1	1	14
1	.....	.....	1	.....	1	.....	.....	1	.....	.....	1	.....	.....	15
.....	.....	.....	1	.....	1	.....	.....	.....	1	.....	.....	.....	1	16
2	.....	.....	1	.....	1	.....	.....	.....	.....	.....	2	.....	.....	17
1	.....	.....	1	.....	.....	.....	1	.....	.....	.....	1	.....	.....	18
.....	.....	.....	.....	.....	1	.....	.....	.....	1	.....	.....	.....	.....	19
.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	20
.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	21
1	.....	.....	1	.....	.....	.....	.....	.....	1	.....	1	.....	.....	22
.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	23
1	.....	.....	.....	.....	1	1	.....	.....	1	.....	.....	.....	1	24
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	25
49	9	11	73	.....	29	41	19	16	30	4	66	6	26	14

TABLE II.

CITY OF ST. THOMAS, ONT.

DISEASES IN THE ORDER OF FATALITY.			RELIGIONS.			
—			Total Deaths.	Roman Catholics.	Ch. of Eng-land.	Pres-byte-riens.
MALADIES DANS L'ORDRE DE LA FATALITÉ.			Total des décès.	—	—	—
				Ca-tho-liques Ro-mains	Eglise d'An-gle-terre.	Pres-byté-riens.
1	Phthisis.....	Phthisie	17	2	7	3
2	Old Age.....	Veillesse	16		6	2
3	Lung diseases.....	Affections pulmonaires..	15	1	4	1
4	Enteritis and other Affections of the Bowels.....	Entérites et autres maladies d'intestins.....	11		3	
5	Diarrhoeal Affections.....	Diarrhées	9		3	
6	Paralysis.....	Paralysie	9	1	1	1
7	Heart and Blood Vessels Diseases..	Maladies du cœur et des vaisseaux sanguins.....	8	2	2	1
8	Anæmia.....	Anémie	6		1	2
9	Epilepsy and Convulsions.....	Epilepsie et convulsions.....	6			
10	Scarlet Fever.....	Fièvre scarlatine	5		2	
11	Cancer.....	Cancer	5		2	2
12	Cerebro Spinal Affections.....	Affections cérébro-spinales.....	4			1
13	Throat Affections.....	Affections de la gorge	4			
14	Typhus, Enteric or Typhoid and continued fevers.....	Typhus, fièvres typhoïdes et fièvres continues	3			2
15	Stomach diseases.....	Maladies de l'estomac.....	3	1		
16	Catarrhal Affections.....	Affections catharrales.....	2		1	
17	Fractures and contusions.....	Fractures et contusions.....	2			1
18	Suicide.....	Suicide.....	2		1	
19	Not specified and ill-defined.....	Non spécifiées et indéfinies.....	2	1		1
20	Measles.....	Rougeole	1			
21	Rheumatism.....	Rhumatisme.....	1			
22	Hydrocephalus	Hydrocéphalie.....	1			
23	Other Constitutional Diseases.....	Autres maladies constitutionnelles.....	1			
24	Child Birth.....	Accouchement.....	1			1
25	Apoplexy.....	Apoplexie.....	1			1
26	Peritonitis.....	Péritonite	1			1
27	Suffocation.....	Suffocation	1		1	
28	Railway accidents.....	Accident par les chemins de fer.....	1			1
29	Dropsy.....	Hydropisie.....	1			1
30	Atrophy and Debility.....	Atrophie et débilité.....	1			
Totals.....			140	8	34	22

TABLEAU II.															CITÉ DE ST. THOMAS, ONT.														
RELIGIONS.			NATIONALITIES.					OCCUPATIONS.																					
RELIGIONS.			NATIONALITÉS.					OCCUPATIONS.																					
Metho- dists.	Bap- tists.	Oth- ers.	Eng- lish.	Fren- ch.	Irish.	Scot- ch.	Oth- ers.	Agri- cul- tural.	Com- mer- cial.	Do- mestic	In- dus- trial.	Pro- fes- sional	La- bour- ers.	Not Classed.															
Mé- tho- distes.	Bap- tistes.	Au- tres.	An- glais.	Fran- çais.	Irlan- dais.	Ecos- sais.	Au- tres.	Agri- cole.	Com- merciale.	Do- mestique.	In- dus- trielle	Pro- fes- sions.	Jour- na- liers.	Non Classé.															
2	3		8		4	4	1	2	7			4	4																
6	2		8		4	2	2	1	7		4	2	1	1															
6	2	1	5	2	1	4	3	5	7		3	1	1																
6	2		9		2				8		1		1	1															
5		1	3		2	2	2		1		1	4	3																
6			5		1	2	1	2	2		2		2	1															
3			2		3	1	2	1	2		3		1	1															
3			4		1	1			4		2																		
6			5		1				6																				
3			2		3				2			1	2																
	1		2		1	2			1	1	2	1																	
2	1		2			1	1		2		2																		
4			3		1				3		1																		
1					2		1		2		1																		
1	1		2		1				1				1	1															
	1				1		1		1		1																		
	1		2						2		2																		
					1	1				1	1																		
1			1								1		1																
1							1				1																		
					1				1																				
					1				1				1																
					1				1																				
						1			1																				
						1			1																				
						1			1																				
	1					1			1																				
58	16	2	65	2	32	26	15	10	64	2	28	13	18	5															

TABLE II.

TOWN OF WINDSOR, ONT.

			RELIGIONS.		
DISEASES IN THE ORDER OF FATALITY.		Total Deaths.	Roman Catholics.	Ch. of Eng-land.	Pres-byte-rians.
MALADIES DANS L'ORDRE DE LA FATALITÉ.		Total des décès.	—	—	—
			Catholi-ques Ro-mains	Eglise d'An-gle-terre.	Pres-byté-riens.
Lung diseases...	Affections pulmonaires...	22	5	3	4
Phthisis	Phthisie.....	18	5	5	2
Cerebro Spinal Affections.....	Affections cérébro-spinales.....	12	9	1	1
Heart and Blood Vessels Diseases...	Maladies du cœur et des vaisseaux sanguins.....	12	1	1	2
Diarrhœal Affections.....	Diarrhées.....	8	1	2	
Cancer.....	Cancer.....	7	4	1	
Epilepsy and Convulsions.....	Epilepsie et convulsions.....	7	2		
Atrophy and Debility.....	Atrophie et débilité.....	7	1	2	3
Stomach diseases.....	Maladies de l'estomac.....	6	2	1	1
Diphtheria.....	Diphthérie.....	5	1		1
Diseases of the Urinary organs.....	Maladies des voies Urinaires.....	5		3	1
Typhus, Enteric or Typhoid and continued fevers.....	Typhus, fièvres typhoïdes et fièvres continues.....	4	1	1	
Apoplexy.....	Apoplexie.....	4	1		1
Paralysis.....	Paralysie.....	4	2		
Enteritis and other Affections of the Bowels.....	Entérites et autres maladies d'intestins.....	4		1	
Premature Birth.....	Naissance prématurée.....	3	2		1
Cyanosis.....	Cyanosis.....	3			
Old Age.....	Vieillesse.....	3	3		
Anæmia.....	Anémie.....	2	2		
Throat Affections.....	Affections de la gorge.....	2		1	
Drowning.....	Noyades.....	2	1	1	
Suffocation.....	Suffocation.....	2			1
Not specified and ill-defined.....	Non spécifiées et indéfinies.....	2	1		
Measles.....	Rougeole.....	1	1		
Whooping Cough.....	Coqueluche.....	1		1	
Other Malarial Diseases.....	Malaria.....	1			
Syphilis.....	Syphilis.....	1			
Puerperal Fever.....	Fièvres puerpérales.....	1		1	
Hydrocephalus.....	Hydrocéphalie.....	1			
Child Birth.....	Accouchement.....	1			
Peritonitis.....	Péritonite.....	1	1		
Liver diseases.....	Maladies du foie.....	1		1	
Dropsy.....	Hydropisie.....	1		1	
Totals.....	Totaux.....	154	46	27	18

TABLEAU II. VILLI DE WINDSOR, ONT.															
RELIGIONS.			NATIONALITIES. NATIONALITÉS.					OCCUPATIONS.							
Metho- dists.	Bap- tists.	Oth- ers.	Eng- lish.	Fren- ch.	Irish.	Scot- ch.	Oth- ers.	Agri- cul- tural.	Com- mer- cial.	Do- mestic	In- dus- trial.	Pro- fes- sional	La- bour- ers.	Not Classed.	
Mé- tho- distes.	Bap- tistes.	Au- tres.	Ang- lais.	Fran- çais.	Irlan- dais.	Ecos- sais.	Au- tres.	Agri- cole.	Com- mer- ciale.	Do- mesti- que.	In- dus- trielle	Pro- fes- sions.	Jour- na- liers.	Non Classé.	
7 4 1	2 2	1	8 6 1	2 2 4	3 4 3	3 2 1	6 4 3	1 4 1	6 4 4	..... 2 1	7 3 1	3 1 1	4 4 4	1	1 2 3
6 4 1	1 1 1	1	3 3 2	..... 1 2	3 2	2 1	4 4	2	3 3 1	..... 1 1	2 2 2	..... ..... .....	5 2 2	..... ..... 1	4 5 6
4 1 2	..... ..... .....	1	3 4 3	1 1	..... 1 .....	..... 2 1	3 1	1 1	1 1 2	..... ..... .....	2 3 3	1	1 1	1 2	7 8 9
2 1 .....	..... ..... .....	1	2 1	1	1 3 .....	..... 1	1 ..... .....	..... ..... .....	..... 2 .....	..... 1	4 1 .....	..... ..... .....	1 1 .....	..... ..... .....	10 11
2 ..... .....	..... ..... .....	.....	1 ..... .....	..... ..... .....	1	1	1 ..... .....	..... ..... .....	2 ..... .....	..... ..... .....	1 ..... .....	..... ..... .....	1 ..... .....	..... ..... .....	12
1 2	1 ..... .....	.....	..... ..... .....	2 ..... .....	..... ..... .....	1	3 2 .....	..... 2	1 ..... .....	..... ..... .....	2 1	1 ..... .....	..... 1 .....	..... ..... .....	13 14
3 ..... .....	..... ..... .....	.....	..... ..... .....	..... ..... .....	1	1	2 ..... .....	..... ..... .....	2 ..... .....	..... ..... .....	1 ..... .....	..... ..... .....	1 ..... .....	..... ..... .....	15
3 ..... .....	..... ..... .....	.....	..... 2	1 2	1 1	1 ..... .....	..... ..... .....	1 1	..... 2 1	..... ..... .....	..... 1	1	1 ..... .....	..... ..... .....	16 17 18
1 ..... .....	..... ..... .....	.....	2 1 .....	..... ..... .....	2 ..... .....	..... ..... .....	..... 1	1 1	..... ..... .....	..... ..... .....	..... 1 .....	..... ..... .....	1 ..... .....	..... ..... .....	19 20 21
1 1 .....	..... ..... .....	.....	1 ..... .....	..... 1 .....	..... ..... .....	1 ..... .....	..... 1	1	1 ..... .....	..... ..... .....	..... ..... .....	..... ..... .....	..... ..... .....	..... ..... .....	22 23 24
1 1 .....	..... ..... .....	.....	1 1 .....	..... ..... .....	..... ..... .....	..... ..... .....	..... ..... 1	..... ..... .....	..... 1 .....	..... ..... .....	..... ..... .....	..... ..... .....	1 1 .....	..... ..... .....	25 26 27
1 1 .....	..... ..... .....	.....	1 1 .....	..... ..... .....	..... ..... .....	..... ..... .....	..... 1 .....	..... ..... .....	..... ..... 1	..... ..... .....	..... ..... .....	..... ..... .....	..... 1 .....	..... ..... .....	28 29 30
..... ..... .....	..... ..... .....	.....	1 1 .....	..... ..... .....	1 ..... .....	..... ..... .....	..... ..... .....	1 ..... .....	..... 1 .....	..... ..... .....	..... ..... .....	1 ..... .....	..... ..... .....	..... ..... .....	31 32 33
51	8	4	49	23	25	19	38	18	38	7	39	9	37	6	

TABLE II.

CITY OF SHERBROOKE.

DISEASES IN THE ORDER OF FATALITY.			RELIGIONS.			
MALADIES DANS L'ORDRE DE LA FATALITÉ.			Total Deaths.	Roman Catholics.	Ch. of Eng-land.	Pres-byte-rians.
			Total des décès.	Ca-tholi-ques Ro-mains	Eglise d'An-gle-terre.	Pres-byté-riens.
1	Diarrheal Affections	Diarrhées	35	32	2	
2	Diphtheria	Diphthérie	31	23	3	4
3	Atrophy and Debility	Atrophie et débilité	31	27	2	
4	Phthisis	Phthisie	28	19	4	3
5	Lung diseases	Affections pulmonaires	24	20	2	1
6	Dentition	Dentition	16	15	1	
7	Cerebro Spinal Affections	Affections cérébro-spinales	14	13		1
8	Enteritis and other Affections of the Bowels	Entérites et autres maladies d'intestins	14	12		
9	Heart and Blood Vessels Diseases	Maladies du cœur et des vaisseaux sanguins	13	9	2	1
10	Measles	Rougeole	12	12		
11	Premature Birth	Naissance prématurée	11	9	1	
12	Old Age	Vieillesse	11	10	1	
13	Throat Affections	Affections de la gorge	7	6	1	
14	Typhus, Enteric or Typhoid and continued fevers	Typhus, fièvres typhoïdes et fièvres continues	6	6		
15	Whooping Cough	Coqueluche	5	4	1	
16	Cancer	Cancer	5	3	2	
17	Paralysis	Paralysie	5	2	1	
18	Epilepsy and Convulsions	Epilepsie et convulsions	5	4	1	
19	Catarrhal Affections	Affections catharrales	4	3	1	
20	Dropsy	Hydropisie	4	3		
21	Small-Pox	Variolè	3	3		
22	Rheumatism	Rhumatisme	3	2		1
23	Diseases of the Urinary organs	Maladies des voies urinaires	3	1	1	1
24	Suffocation	Suffocation	3	3		
25	Puerperal Fever	Fièvres puerpérales	2	1		1
26	Hydrocephalus	Hydrocéphalie	2	1		1
27	Stomach diseases	Maladies de l'estomac	2	1		1
28	Liver diseases	Maladies du foie	2	1		
29	Drowning	Noyades	2	1		
30	Other accidents	Autres accidents	2	2		
31	Suicide	Suicide	2		2	
32	Remittent Fever	Fièvre remittente	1	1		
33	Purpura	Purpura	1		1	
34	Anæmia	Anémie	1	1		
35	Scrofula and other forms of Tuberculosis	Scrofules et autres formes de Tubercule	1	1		
36	Other Constitutional Diseases	Autres maladies constitutionnelles	1			
37	Apoplexy	Apoplexie	1			1
38	Quinsy	Angine	1	1		
39	Fractures and contusions	Fractures et contusions	1	1		
40	Burns and Scalds	Brûlures	1			1
41	Not specified and ill-defined	Non spécifiées et indéfinies	1	1		
Totals			317	254	29	17

TABLEAU II. CITE DE SHERBROOKE.														
RELIGIONS.			NATIONALITIES. — NATIONALITÉS.					OCCUPATIONS.						
Metho- dists.	Bap- tists.	Oth- ers.	Eng- lish.	Fren- ch.	Irish.	Scot- ch.	Oth- ers.	Agri- cul- tural.	Com- mer- cial.	Do- mestic.	Ind- us- trial.	Pro- fes- sional.	La- bour- ers.	Not Classed.
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mé- tho- distes.	Bap- tistes.	Au- tres.	An- glais.	Fran- çais.	Irlan- dais.	Ecos- sais.	Au- tres.	Agri- cole.	Com- merciale.	Do- mestique.	Ind- ustrielle.	Pro- fessions.	Jour- na- liers.	Non Classé.
		1	3	30			2		5	3	16		11	1
1			4	21	2	4		1	8		12		10	2
1		1	5	24	2				4	2	9		15	3
2			5	15	4	4		3	3		10	1	11	4
1			3	19		1	1	3		1	6	1	13	5
			1	14		1			4	1	4	1	6	6
				12	1	1			3		5	2	4	7
		2	1	12	1			1	2		4		7	8
1			3	8	1	1		5	1	1	3		3	9
			12								5		7	10
		1	2	9					2	1	6		2	11
			1	8	2			3	1		1		6	12
			1	6					2		1		4	13
				6					2		1		3	14
			1	4					1		1		3	15
			1	2	2			1	1	1	1		1	16
1		1	1	2		1	1	1			2	1	1	17
			1	3	1				1		1		3	18
			1	2	1				1		2		1	19
		1	1	3				1		1	1		2	20
				3							1		2	21
			1	1		1		1			1		1	22
				3				2			1			23
				1		1							3	24
				1		1			2					25
				1		1			1		1			26
				1		1			1		1			27
		1	1	1							1		1	28
		1		1	1						2			29
				2					1				1	30
			2										2	31
				1									1	32
			1								1			33
				1					1					34
				1									1	35
		1	1						1					36
				1		1			1				1	37
				1									1	38
						1							1	39
				1				1					1	40
														41
7		10	41	235	18	19	4	23	49	11	98	6	128	2

TABLE II.

CITY OF BELLEVILLE.

DISEASES IN THE ORDER OF FATALITY.			RELIGIONS.			
MALADIES DANS L'ORDRE DE LA FATALITÉ.			Total Deaths.	Roman Catholics.	Ch. of Eng-land.	Pres-byte-ri-ans.
			Total des décès.	Ca-tho-liques Ro-mains	Eglise d'An-gle-terre.	Pres-byté-ri-ens.
1	Phthisis	Phthisie	20	7	4	2
2	Diarrhoeal Affections	Diarrhées	16	6	1	4
3	Lung diseases	Affections pulmonaires	15	5	6	1
4	Old Age	Vieillesse	10	3	1	
5	Paralysis	Paralysie	9	4	4	
6	Cancer	Cancer	5	2	1	1
7	Heart and Blood Vessels Diseases ..	Maladies du cœur et des vaisseaux sanguins	5	2	2	
8	Enteritis and other Affections of the Bowels	Enterites et autres maladies d'intestins	5	1	2	1
9	Diseases of the Urinary organs	Maladies des voies urinaires	4		1	
10	Dropsy	Hydropisie	4	1	1	1
11	Child Birth	Accouchement	3		2	
12	Cerebro Spinal Affections	Affections cérébro-spinales	3			1
13	Throat Affections	Affections de la gorge	3	1	2	
14	Atrophy and Debility	Atrophie et débilité	3		2	
15	Typhus, Enteric or Typhoid and continued fevers	Typhus, fièvres typhoïdes et fièvres continues	2			1
16	Rheumatism	Rhumatisme	2			
17	Hydrocephalus	Hydrocéphalie	2		1	
18	Railway accidents	Accidents par les chemins de fer	2		1	
19	Not specified and ill-defined	Non spécifiées et indéfinies	2			1
20	Erysipelas	Erysipèle	1			1
21	Septicæmia	Septicémie	1	1		
22	Anæmia	Anémie	1		1	
23	Apoplexy	Apoplexie	1			1
24	Epilepsy and Convulsions	Épilepsie et convulsions	1			1
25	Peritonitis	Péritonite	1			
26	Liver diseases	Maladies du foie	1		1	
27	Fractures and Contusions	Fractures et contusions	1	1		
28	Suicide	Suicide	1	1		
29	Homicide	Homicide	1		1	
30	Hanged (Judicial)	Exécutions de haute justice	1	1		
Totals		Totaux	126	36	34	16

TABLEAU II. CITÉ DE BELLEVILLE.															
RELIGIONS.			NATIONALITIES. NATIONALITÉS.					OCCUPATIONS.							
Me-tho-dists.	Bap-tists.	Oth-ers.	Eng-lish.	Fren-ch.	Irish.	Scot-ch.	Oth-ers.	Agri-cul-tural.	Com-mer-cial.	Do-mestic	In-dus-trial.	Pro-fes-sional	La-bour-ers.	Not Classed.	
Mé-tho-distés.	Bap-tistes.	Au-tres.	An-glais.	Fran-çais.	Irlan-dais.	Ecos-sais.	Au-tres.	Agri-cole.	Com-mer-ciale.	Do-mestique.	In-dus-trielle	Pro-fes-sions.	Jour-na-liers.	Non Classé.	
7			5		13	1	1	2	5		4	2	5	2	1
4	1		4	1	9	1	1		9		3	1	3		2
2	1		8		6	1		2	3		5		4	1	3
6			6		4			3	1		3		3		4
1			4	2	3				2	1	1	1	4		5
1			1	1	2	1		1	1		2		1		6
1			2		1	1	1		1	1	1		2		7
		1	3		2				1		2	1		1	8
2		1	3				1		1		1	1	1		9
1			1	1	2			1	1				2		10
1			2			1			2		1				11
2			2		1				1				2		12
			1		1	1			1		1		1		13
1			2		1			1	2						14
1						1	1	1						1	15
2			2					1			1				16
1			1		1						2				17
1					1		1						2		18
1			1		1	1					1	1			19
					1				1						20
									1						21
			1		1			1							22
					1					1					23
					1					1					24
1			1								1				25
			1										1		26
					1								1		27
					1									1	28
			1										1		29
					1								1		30
36	2	2	52	5	54	9	6	13	34	3	29	7	35	5	

TABLE II.

TOWN OF PETERBOROUGH.

DISEASES IN THE ORDER OF FATALITY.			RELIGIONS.			
MALADIES DANS L'ORDRE DE LA FATALITÉ.			Total Deaths.	Roman Catholics.	Ch. of Eng-land.	Pres-byte-ri-ans.
			—	—	—	—
			Total des décès.	Catho-likes Ro-mains	Eglise d'An-gle-terre.	Pres-byté-ri-ens.
1	Lung diseases.....	Affections pulmonaires.....	30	10	10	3
2	Old Age.....	Vieillesse.....	19	5	3	5
3	Phthisis.....	Phthisie.....	12	6	3	.....
4	Enteritis and other Affections of the Bowels.....	Entérites et autres maladies d'intestins.....	12	2	2	2
5	Cerebro Spinal Affections.....	Affections cérébro-spinales.....	10	.....	3	2
6	Diphtheria.....	Diphthérie.....	9	3	1	1
7	Diarrhoeal Affections.....	Diarrhées.....	9	4	1	2
8	Heart and Blood Vessels Diseases.....	Maladies du cœur et des vaisseaux sanguins.....	9	1	3	2
9	Atrophy and Debility.....	Atrophie et débilité.....	9	4	3	1
10	Diseases of the Urinary organs.....	Maladies des voies urinaires.....	7	.....	1	3
11	Typhus, Enteric or Typhoid and continued fevers.....	Typhus, fièvres typhoides et fièvres continues.....	5	2	.....	.....
12	Apoplexy.....	Apoplexie.....	4	.....	.....	.....
13	Measles.....	Rougeole.....	3	2	.....	.....
14	Hydrocephalus.....	Hydrocéphalie.....	3	1	.....	.....
15	Throat Affections.....	Affections de la gorge.....	3	1	.....	1
16	Other Malarial Diseases.....	Malaria.....	2	.....	1	1
17	Epilepsy and Convulsions.....	Epilepsie et convulsions.....	2	.....	.....	1
18	Liver diseases.....	Maladies du foie.....	2	.....	2	.....
19	Drowning.....	Noyades.....	2	1	.....	.....
20	Not specified and ill-defined.....	Non spécifiées et indéfinies.....	2	.....	1	1
21	Catarrhal Affections.....	Affections catharrales.....	1	.....	.....	.....
22	Anæmia.....	Anémie.....	1	.....	.....	.....
23	Cancer.....	Cancer.....	1	.....	.....	.....
24	Premature Birth.....	Naissance prématurée.....	1	.....	.....	.....
25	Malformations.....	Difformités.....	1	.....	.....	.....
26	Paralysis.....	Paralysie.....	1	1	.....	.....
27	Stomach diseases.....	Maladies de l'estomac.....	1	1	.....	.....
28	Joint diseases.....	Maladies des articulations.....	1	1	.....	.....
29	Dropsy.....	Hydropisie.....	1	.....	.....	1
Totals.....			163	45	34	26

TABLEAU II. VILLE DE PETERBOROUGH.															
RELIGIONS.			NATIONALITIES. NATIONALITÉS.					OCCUPATIONS.							
Metho- dists.	Bap- tists.	Oth- ers.	Eng- lish.	Fren- ch.	Irish.	Scot- ch.	Oth- ers.	Agri- cul- tural.	Com- mer- cial.	Do- mestic	In- dus- trial.	Pro- fes- sional.	La- bour- ers.	Not Classed.	
Mé- tho- distes.	Bap- tistes.	Au- tres.	An- glais.	Fran- çais.	Irlan- dais.	Ecos- sais.	Au- tres.	Agri- cole.	Com- mer- ciale.	Do- mesti- que.	In- dus- trielle.	Pro- fes- sions.	Jour- na- liers.	Non Classé.	
7			13	1	13	3		2	2	3	13		9	1	1
2	4		6		11	1	1	9	2		3	2	1	2	2
2	1		5		7			1	4		3		4		3
5		1	6		4	1	1	3	2		5		2		4
3	2		6		4				2		4	2	2		5
2	1	1	3	1	3	2		1	1		5	1	1		6
2			4		4	1		1	3		4		1		7
3			4		3	2			2		6			1	8
1			4	1	4			1		1	3	2	2		9
3			3		3	1		1	3		2	1			10
3			2		3			1	1	1	2				11
4			4						1		1	2			12
	1				3						2		1		13
2			1		1		1				1		2		14
1			1	1		1					3				15
			1		1				1		1				16
		1	1		1		1		1				1		17
			1		1				1				1		18
1			1		1				1		1				19
1			1			1					1		1		20
			1										1		21
1			1								1				22
1					1						1				23
1			1								1				24
	1		1								1				25
					1								1		26
					1				1						27
					1								1		28
					1			1							29
45	10	3	71	4	71	13	4	21	28	5	64	10	31	4	

TABLE II.

CITY OF STRATFORD.

DISEASES IN THE ORDER OF FATALITY.			RELIGIONS.			
MALADIES DANS L'ORDRE DE LA FATALITÉ.			Total Deaths.	Roman Catholics.	Ch. of Eng-land.	Pres-byte-rians.
			Total des décès.	Catholiques Romains	Eglise d'Angle-terre.	Pres-byté-riens.
1	Diphtheria	Diphtérie	15	3	3	1
2	Phthisis	Phthisie	9	2	1	4
3	Old Age	Vieillesse	7	2	1	1
4	Heart and Blood Vessels Diseases ..	Maladies du cœur et des vaisseaux sanguins ..	7	2		2
5	Epilepsy and Convulsions	Epilepsie et convulsions	6	1	2	2
6	Lung diseases	Affections pulmonaires	6	2	1	2
7	Diarrheal Affections	Diarrhées	4	2		2
8	Cancer	Cancer	4	1	2	
9	Stomach diseases	Maladies de l'estomac	4		2	1
10	Premature Birth	Naissance prématurée	3		1	
11	Diseases of the Urinary organs	Maladies des voies urinaires	3		2	
12	Dropsy	Hydropisie	3	1	1	
13	Catarrhal Affections	Affections catharrales	2			2
14	Hydrocephalus	Hydrocéphalie	2			1
15	Cerebro Spinal Affections	Affections cérébro-spinales	2	1		
16	Apoplexy	Apoplexie	2			1
17	Enteritis and other Affections of the Bowels	Entérites et autres maladies d'intestins	2			
18	Railway accidents	Accidents par les chemins de fer ..	2	1		1
19	Suicide	Suicide	2		1	
20	Atrophy and Debility	Atrophie et débilité	2		2	
21	Not specified and ill-defined	Non spécifiées ou indéfinies	2		1	
22	Typhus, Enteric or Typhoid and continued fevers	Typhus, fièvres typhoïdes et fièvres continues	1			1
23	Whooping Cough	Coqueluche	1		1	
24	Erysipelas	Erysipèle	1		1	
25	Child Birth	Accouchement	1		1	
26	Paralysis	Paralysie	1			1
27	Poison	Empoisonnements	1			
28	Drowning	Noyades	1			1
29	Hemorrhage	Hémorrhagie	1			1
Totals			97	18	23	24

TABLEAU II.															CITÉ DE STRATFORD.														
RELIGIONS.			NATIONALITIES.						OCCUPATIONS.																				
			NATIONALITÉS.																										
Metho- dists.	Bap- tists.	Oth- ers.	Eng- lish.	Fren- ch.	Irish.	Scot- ch.	Oth- ers.	Agri- cul- tural.	Com- mer- cial.	Do- mestic	In- dus- trial.	Pro- fes- sional	La- bour- ers.	Not Classed.															
Métho- distes.	Bap- tistes.	Au- tres.	Ang- lais.	Fran- çais.	Irlan- dais.	Ecos- sais.	Au- tres.	Agri- cole.	Com- mer- ciale.	Do- mestique.	Indus- trielle	Pro- fession- sions.	Jour- na- liers.	Non Classé.															
		8					15		3		8		4	1															
2			1				8		3		4		1	2															
2	1		3		3	1		2		3			1	3															
2	1		2		1		4		4		1			4															
		1					6		3		1		1	5															
		1	1		2	1	2				2		3	6															
1			2			2	4		2		1		1	7															
1			1			1	2		2	1	1			8															
2							3		3					9															
1			2				1				2		1	10															
1					1	1	1		1				1	11															
					1	1					1	1		12															
		1					2		1		1		1	13															
1		1	1				1	1	1				1	14															
									1		1			15															
1			2						1				1	16															
1			2						1					17															
							1		1		1			18															
							1			1				19															
							1		1					20															
		1					1				1			21															
							1				1			22															
							1				1			23															
16	2	14	17		8	11	61	5	28	6	29	1	16	12															

TABLE II.

CITY OF CHATHAM, ONT.

DISEASES IN THE ORDER OF FATALITY.			RELIGIONS.			
MALADIES DANS L'ORDRE DE LA FATALITÉ.			Total Deaths.	Roman Catholics.	Ch. of Eng-land.	Pres-byte-rians.
			—	—	—	—
			Total des décès.	Ca-tho-liques Ro-mains	Eglise d'An-gle-terre.	Pres-byté-riens.
1	Phthisis.....	Phthisie.....	19	1	6	3
2	Lung diseases.....	Affections pulmonaires.....	11	2	1	2
3	Scarlet Fever.....	Fièvre scarlatine.....	9	4	.....	4
4	Old Age.....	Vieillesse.....	9	.....	5	2
5	Cerebro Spinal Affections.....	Affections cérébro-spinales.....	8	.....	1	.....
6	Atrophy and Debility.....	Atrophie et débilité.....	8	2	1	1
7	Epilepsy and Convulsions.....	Epilepsie et convulsions.....	7	1	2	2
8	Diarrhœal Affections.....	Diarrhées.....	6	2	2	1
9	Diseases of the Urinary organs.....	Maladies des voies urinaires.....	6	1	.....	1
10	Catarrhal Affections.....	Affections catharrales.....	5	1	1	2
11	Typhus, Enteric or Typhoid and continued fevers.....	Typhus, fièvres typhoïdes et fièvres continues.....	5	2	1	1
12	Paralysis.....	Paralysie.....	5	.....	3	1
13	Cancer.....	Cancer.....	4	2	.....	2
14	Heart and Blood Vessels diseases.....	Maladies du cœur et des vaisseaux sanguins.....	4	.....	1	2
15	Rheumatism.....	Rhumatisme.....	3	1	1	.....
16	Throat Affections.....	Affections de la gorge.....	3	.....	2	.....
17	Enteritis and other Affections of the Bowels.....	Entérites et autres maladies d'intestins.....	2	.....	.....	1
18	Dentition.....	Dentition.....	2	.....	.....	.....
19	Not specified and ill-defined.....	Non spécifiées et indéfinies.....	2	1	1	.....
20	Measles.....	Rougeole.....	1	.....	1	.....
21	Diphtheria.....	Diphthérie.....	1	.....	.....	.....
22	Erysipelas.....	Erysipèle.....	1	.....	.....	.....
23	Child Birth.....	Accouchement.....	1	.....	.....	.....
24	Apoplexy.....	Apoplexie.....	1	.....	.....	.....
25	Stomach diseases.....	Maladies de l'estomac.....	1	.....	.....	.....
26	Hemorrhage.....	Hémorrhagie.....	1	.....	.....	.....
Totals.....			125	20	29	25

TABLEAU II. CITE DE CHATHAM, ONT.															
RELIGIONS.			NATIONALITIES. NATIONALITÉS.						OCCUPATIONS.						
Me-tho-dists.	Bap-tists.	Oth-ers.	Eng-lish.	Fren-ch.	Irish.	Scot-ch.	Oth-ers.	Agri-cultural.	Com-mer-cial.	Do-mestic.	In-dus-trial.	Pro-fes-sional.	La-bour-ers.	Not Classed.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Mé-tho-distes.	Bap-tistes.	Au-tres.	An-glais.	Fran-çais.	Irlan-dais.	Ecos-sais.	Au-tres.	Agri-cole.	Com-merciale.	Do-mestique.	In-dus-trielle.	Pro-fes-sions.	Jour-naliers.	Non Classé.	
4	5	....	7	....	2	1	9	2	3	....	4	2	8	....	1
5	1	....	3	2	....	2	4	....	3	....	2	....	6	....	2
....	1	....	3	....	2	3	1	....	3	1	3	....	2	....	3
2	....	....	3	....	3	2	1	7	....	....	....	....	2	....	4
6	1	....	3	....	1	4	1	1	1	....	2	....	4	....	5
2	2	....	....	1	3	1	3	1	....	2	1	....	4	....	6
....	1	1	5	1	....	1	....	1	....	....	1	1	4	....	7
1	....	....	2	2	1	1	....	....	2	....	2	....	2	....	8
4	....	....	4	....	....	2	....	....	2	....	3	1	....	....	9
....	1	....	1	....	2	1	1	1	....	....	....	....	4	....	10
....	1	....	3	....	1	1	....	....	....	1	1	....	3	....	11
1	....	....	3	....	....	1	1	....	....	1	....	2	2	....	12
....	....	....	1	1	1	1	....	....	1	....	1	....	2	....	13
1	....	....	....	....	2	1	....	1	1	....	....	2	....	....	14
....	1	....	1	....	....	2	1	1	....	....	....	2	3	....	15
....	1	....	3	....	....	....	....	....	....	....	....	2	1	....	16
....	1	1	....	....	....	2	....	....	2	....	....	....	2	....	17
1	....	....	....	....	....	....	2	....	....	....	....	....	....	....	18
....	....	....	1	....	....	1	....	....	....	....	....	....	1	1	19
....	....	....	1	....	....	....	....	....	....	....	....	....	1	....	20
1	....	....	....	....	....	....	1	....	....	....	....	....	1	....	21
....	1	....	....	....	....	....	1	....	....	....	....	....	1	....	22
....	1	....	1	....	....	....	....	....	1	....	....	....	....	....	23
....	1	....	....	....	....	....	1	....	....	....	....	....	1	....	24
....	....	1	1	....	....	....	....	....	....	....	....	....	1	....	25
1	....	....	....	....	....	....	1	....	....	....	....	....	1	....	26
29	19	3	46	7	18	21	33	14	19	5	20	10	56	1	

TABLE II.

CITY OF BROCKVILLE.

			RELIGIONS.		
DISEASES IN THE ORDER OF FATALITY.		Total Deaths.	Roman Catholics.	Ch. of Eng-land.	Pres-byte-rians.
MALADIES DANS L'ORDRE DE LA FATALITÉ.		Total des décès.	Ca-tholi-ques Ro-mains	Eglise d'An-gle-terre.	Pres-byté-riens.
Phthisis.....	Phthisie.....	13	2	5	2
Lung diseases.....	Affections pulmonaires.....	12	3	5	3
Old Age.....	Veillesse.....	10	5	3	1
Epilepsy and Convulsions.....	Epilepsie et convulsions.....	8	2	3	.....
Heart and Blood Vessels Diseases.....	Maladies du cœur et des vaisseaux sanguins.....	7	2	3	2
Diarrhoeal Affections.....	Diarrhées.....	6	1	1	2
Cancer.....	Cancer.....	6	2	2	1
Apoplexy.....	Apoplexie.....	5	2	.....	2
Paralysis.....	Paralysie.....	4	1	2	.....
Diseases of the Urinary organs.....	Maladies des voies urinaires.....	4	.....	2	.....
Dropsy.....	Hydropisie.....	4	2	1	1
Scarlet Fever.....	Fièvre scarlatine.....	3	.....	.....	3
Typhus, Enteric or Typhoid and continued fevers.....	Typhus, fièvres typhoïdes et fièvres continues.....	3	.....	.....	2
Cerebro Spinal Affections.....	Affections cérébro-spinales.....	3	.....	.....	1
Fractures and Contusions.....	Fractures et contusions.....	3	2	1	.....
Enteritis and other Affections of the Bowels.....	Entérites et autres maladies d'intestins.....	2	.....	.....	.....
Drowning.....	Noyades.....	2	.....	.....	2
Erysipelas.....	Erysipèle.....	1	.....	.....	.....
Puerperal Fever.....	Fièvres puerpérales.....	1	1	.....	.....
Septicæmia.....	Septicémie.....	1	1	.....	.....
Throat Affections.....	Affections de la gorge.....	1	1	.....	.....
Stomach diseases.....	Maladies de l'estomac.....	1	.....	.....	.....
Diseases of the Uterus.....	Maladies de l'utérus.....	1	.....	1	.....
Gunshot and wounds.....	Blessures et armes à feu.....	1	.....	.....	.....
Railway accidents.....	Accidents per les chemins de fer.....	1	1	.....	.....
Other accidents.....	Autres accidents.....	1	.....	.....	.....
Hæmorrhage.....	Hémorrhagie.....	1	.....	1	.....
Atrophy and Debility.....	Atrophie et débilité.....	1	.....	.....	.....
Not specified and ill-defined.....	Non spécifiées et indéfinies.....	1	1	.....	.....
Totals.....	Totaux.....	107	29	30	22

TABLEAU II.			CITÉ DE BROCKVILLE.											
RELIGIONS.			NATIONALITIES. NATIONALITÉS.					OCCUPATIONS.						
Metho- dists.	Bap- tists.	Oth- ers.	Eng- lish.	Fren- ch.	Irish.	Scot- ch.	Oth- ers.	Agri- cul- tural.	Com- mer- cial.	Do- mestic	In- dus- trial.	Pro- fes- sional	La- bour- ers.	Not Classed
Mé- tho- distes.	Bap- tistes.	Au- tres.	An- glais.	Fran- çais.	Irlan- dais.	Ecos- sais.	Au- tres.	Agri- cole.	Com- mer- ciale.	Do- mesti- que.	In- dus- trielle	Pro- fes- sions.	Jour- na- liers.	Non Classé.
3 1	1		3 2	1	9 9 8	1 1			1 1 2	1 1	1	1 4 3	2 4	1 2 4
3			3	1	4				2		2		4	
1	1		3 1	1 1	1 4	2		2 1	1 1		1 1	1 1	2 2	1
1 1 1			3 1	2 1	2 1 2		1 1		1		2 1	1	1 1 2	3 1 1
	2		3	1	2 2	1 1			1		2 1	1	1	1 2 1
1 1	1		2 2 1		1				2 2 1		1 1	1	1	
1	1		1		1			1	1					
	1					2					2			1
				1	1							1	1	
1					1						1			
	1		1	1				1	1					
	1			1	1				1					
1					1								1	
16	9	1	27	11	51	13	5	10	20	2	29	6	22	18

TABLE II.

TOWN OF WOODSTOCK, ONT.

DISEASES IN THE ORDER OF FATALITY.			RELIGIONS.			
MALADIES DANS L'ORDRE DE LA FATALITÉ.			Total Deaths.	Roman Catholics.	Ch. of Eng-land.	Pres-byte-ri-ans.
			—	—	—	—
			Total des décès.	Ca-tho-liques Ro-mains	Eglise d'An-gle-terre.	Pres-byté-ri-ens.
1	Lung diseases.	Affections pulmonaires	11		5	3
2	Phthisis	Phthisie	9			5
3	Old Age	Vieillesse	8		1	3
4	Heart and Blood Vessels Diseases..	Maladies du cœur et des vaisseaux sanguins	6	1	2	
5	Epilepsy and Convulsions	Epilepsie et convulsions	5			2
6	Typhus, Enteric or Typhoid and continued fevers	Typhus, fièvres typhoïdes et fièvres continues	4			
7	Diarrhoeal Affections	Diarrhées	4		1	
8	Cerebro-Spinal Affections	Affections cérébro spinales	3			
9	Stomach diseases	Maladies de l'estomac	3			1
10	Premature Birth	Naissance prématurée	2			
11	Apoplexy	Apoplexie	2			1
12	Paralysis	Paralysie	2			2
13	Liver diseases	Maladies du foie	2		1	
14	Diseases of the Urinary organs	Maladies des voies urinaires	2		1	1
15	Catarrhal Affections	Affections catharrales	1			
16	Septicæmia	Septicémie	1			1
17	Hydrocephalus	Hydrocéphalie	1		1	
18	Child Birth	Accouchement	1			
19	Enteritis and other Affections of the Bowels	Entérites et autres maladies d'intestins	1			
20	Fractures and contusions	Fractures et contusions	1			
21	Suffocation	Suffocation	1	1		
22	Other Accidents	Autres accidents	1		1	
23	Dropsy	Hydropisie	1			1
24	Hæmorrhage	Hémorrhagie	1			
25	Atrophy and Debility	Atrophie et débilité	1		1	
26	Not specified and ill-defined	Non spécifiées et indéfinies	1		1	
Totals			75	2	15	20

TABLEAU II. VILLE DE WOODSTOCK, ONT.														
RELIGIONS.			NATIONALITIES. NATIONALITÉS.					OCCUPATIONS.						
Metho- dists.	Bap- tists.	Oth- ers.	Eng- lish.	Fren- ch.	Irish.	Scot- ch.	Oth- ers.	Agri- cul- tural.	Com- mer- cial.	Do- mestic	Indus- trial.	Pro- fes- sional	La- bour- ers.	Not Classed.
Mé- tho- distes.	Bap- tistes.	Au- tres.	An- glais.	Fran- çais.	Irland- dais.	Ecos- sais.	Au- tres.	Agri- cole.	Com- mer- ciale.	Do- mesti- que.	Indus- trielle	Pro- fession- sions.	Jour- na- liers.	Non Classé.
2	1		8		2	1			3		3		1	4
2	2		3			6			3		3	1	1	1
2	1	1	4			3	1				1		2	5
2	1		4		2			1			3			2
3			2		1	1	1				4		1	5
2	1	1	2		1	1					2	1		1
2	1		4						1		1		2	7
2		1	3						1		1		1	8
1	1		3						1		2			9
1	1		2								1		1	10
1			1			1			1		1			11
						2			1			1		12
														13
1			1		1					1	1			14
1			1			1						2		15
													1	16
			1						1					17
1			1								1		1	18
														19
1			1								1			20
1			1		1				1		1			21
														22
			1										1	23
1			1			1						1		24
														25
			1								1			26
			1								1			
26	9	3	48		8	17	2	1	13	1	28	6	12	14

TABLE II.

CITY OF THREE RIVERS.

DISEASES IN THE ORDER OF FATALITY.			RELIGIONS.			
MALADIES DANS L'ORDRE DE LA FATALITÉ.			Total Deaths.	Roman Catholics.	Ch. of Eng-land.	Pres-byte-ri-ans.
			—	—	—	—
			Total des décès.	Ca-tho-liques Ro-mains	Eglise d'An-gle-terre.	Pres-byté-ri-ens.
1	Anæmia	Anémie	32	32		
2	Diarrheal Affections	Diarrhées	26	26		
3	Phthisis	Phthisie	23	22		
4	Catarrhal Affections	Affections catharrales	22	22		
5	Dentition	Dentition	22	22		
6	Premature Birth	Naissance prématurée	16	16		
7	Old Age	Vieillesse	16	16		
8	Lung diseases	Affections pulmonaires	13	12		1
9	Cerebro Spinal Affections	Affections cérébro-spinales	12	12		
10	Epilepsy and Convulsions	Epilepsie et convulsions	11	11		
11	Heart and Blood Vessels Diseases	Maladies du cœur et des vaisseaux sanguins	9	9		
12	Whooping Cough	Coqueluche	8	8		
13	Paralysis	Paralysie	8	8		
14	Stomach Diseases	Maladies de l'estomac	8	8		
15	Diphtheria	Diphthérie	7	7		
16	Not specified and ill-defined	Non spécifiées et indéfinies	6	5		
17	Typhus, Enteric or Typhoid and continued fevers	Typhus, fièvres typhoïdes et fièvres continues	5	5		
18	Enteritis and other Affections of the Bowels	Entérites et autres maladies d'intestins	5	5		
19	Throat Affections	Affections de la gorge	4	4		
20	Measles	Rougeole	3	3		
21	Cancer	Cancer	3	3		
22	Dropsy	Hydropsie	3	3		
23	Atrophy and Debility	Atrophie et débilité	3	2	1	
24	Hydrocephalus	Hydrocéphalie	2	2		
25	Other Constitutional Diseases	Autres maladies constitutionnelles	2	2		
26	Skin diseases	Maladies de la peau	2	2		
27	Other accidents	Autres accidents	2	2		
28	Erysipelas	Erysipèle	1	1		
29	Puerperal Fever	Fièvres puerpérales	1	1		
30	Apoplexy	Apoplexie	1	1		
31	Insanity	Folie	1	1		
32	Liver diseases	Maladies du foie	1	1		
33	Diseases of the Urinary organs	Maladies des voies urinaires	1	1		
34	Burns and Scalds	Brûlures	1	1		
35	Drowning	Noyades	1	1		
36	Hemorrhage	Hémorrhagie	1	1		
Totals			282	278	1	1

TABLEAU II. CITÉ DE TROIS-RIVIÈRES.															
RELIGIONS.			NATIONALITIES. NATIONALITÉS.					OCCUPATIONS.							
Me- tho- dists.	Bap- tists.	Oth- ers.	Eng- lish.	Fren- ch.	Irish.	Scot- ch.	Oth- ers.	Agri- cul- tural.	Com- mer- cial.	Do- mestic	Indus- trial.	Pro- fes- sional	Lac- bour- ers.	Not Classed.	
Mé- tho- distes.	Bap- tistes.	Au- tres.	An- glais.	Fran- çais.	Irlan- dais.	Écos- sais.	Au- tres.	Agri- cole.	Com- mer- ciale.	Do- mesti- que.	Indus- trielle	Pro- fes- sions.	Jour- na- liers.	Non Classé.	
.....	31	.....	.....	1	2	6	.....	7	1	13	3	1
.....	26	.....	.....	.....	2	3	3	7	.....	10	1	2
1	1	21	1	.....	.....	2	3	2	5	1	10	.....	3
.....	22	.....	.....	.....	1	1	.....	9	.....	11	.....	4
.....	1	20	.....	.....	1	1	6	.....	4	.....	10	1	5
.....	16	.....	.....	.....	1	2	.....	6	2	5	.....	6
.....	16	.....	.....	.....	2	1	.....	1	.....	8	4	7
.....	12	.....	1	.....	3	2	.....	2	.....	5	1	8
.....	12	.....	.....	.....	1	2	.....	2	1	5	1	9
.....	11	.....	.....	.....	1	3	.....	2	.....	5	.....	10
.....	9	.....	.....	.....	.....	.....	.....	2	.....	6	1	11
.....	8	.....	.....	.....	1	2	.....	1	.....	3	1	12
.....	7	1	.....	.....	2	.....	.....	.....	.....	6	.....	13
.....	8	.....	.....	.....	.....	3	.....	2	.....	2	1	14
.....	7	.....	.....	.....	.....	.....	.....	1	.....	6	.....	15
.....	1	.....	5	.....	.....	1	.....	.....	.....	3	.....	2	1	16
.....	5	.....	.....	.....	1	.....	.....	2	.....	1	1	17
.....	5	.....	.....	.....	.....	1	.....	.....	.....	4	.....	18
.....	4	.....	.....	.....	.....	.....	1	.....	.....	2	1	19
.....	3	.....	.....	.....	.....	.....	.....	1	.....	2	.....	20
.....	3	.....	.....	.....	.....	.....	.....	.....	.....	2	1	21
.....	3	.....	.....	.....	.....	1	.....	.....	.....	2	.....	22
.....	2	.....	.....	1	.....	1	1	1	.....	.....	.....	23
.....	2	.....	.....	.....	.....	.....	.....	.....	1	.....	1	24
.....	1	.....	.....	1	.....	1	.....	.....	1	.....	.....	25
.....	2	.....	.....	.....	.....	1	.....	.....	.....	1	.....	26
.....	2	.....	.....	.....	.....	1	.....	.....	.....	1	.....	27
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	28
.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	29
.....	1	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	30
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	31
.....	1	.....	.....	.....	1	.....	.....	.....	.....	1	.....	32
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	33
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	34
.....	1	.....	.....	.....	.....	1	.....	.....	.....	1	.....	35
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	36
1	1	2	272	2	1	5	22	41	7	58	8	127	19	

TABLE II.		TOWN OF GALT.			
DISEASES IN THE ORDER OF FATALITY. — MALADIES DANS L'ORDRE DE LA FATALITÉ.		Total Deaths. — Total des décès.	RELIGIONS.		
			Roman Catholics. — Catholiques Romains	Ch. of Eng- land. — Eglise d'An- gle- terre.	Pres- byte- rians. — Pres- byté- riens.
1	Lung diseases.....	Affections pulmonaires	16	2	10
2	Heart and Blood Vessels Diseases..	Maladies du cœur et des vaisseaux sanguins	13	3	8
3	Phthisis.....	Phthisie	10		5
4	Old Age.....	Vieillesse	10	3	5
5	Diseases of the Urinary organs.....	Maladies des voies urinaires.....	7		4
6	Cancer.....	Cancer.....	6		4
7	Diarrhœal Affections.....	Diarrhées.....	5		3
8	Cerebro Spinal Affections.....	Affections cérébro-spinales.....	5	1	3
9	Paralysis.....	Paralyse	3	1	2
10	Epilepsy and Convulsions.....	Epilepsie et convulsions.....	3		
11	Throat Affections	Affections de la gorge	3		1
12	Suicide.....	Suicide.....	3	1	
13	Not specified and ill-defined.....	Non spécifiées et indéfinies.....	3	1	2
14	Catarrhal Affections	Affections catharrales.....	2	1	
15	Typhus, Enteric or Typhoid and continued fevers	Typhus, fièvres typhoïdes et fièvres continues.....	2		2
16	Dropsy.....	Hydropisie	2		
17	Diphtheria.....	Diphthérie	1		1
18	Whooping Cough.....	Coqueluche	1		
19	Other Malarial Diseases.....	Malaria.....	1		
20	Rheumatism.....	Rhumatisme.....	1		1
21	Anæmia.....	Anémie	1		1
22	Hydrocephalus.....	Hydrocéphalie	1		1
23	Other Constitutional Diseases	Autres maladies constitutionnelles..	1	1	
24	Child Birth.....	Accouchement.....	1		1
25	Enteritis and other Affections of the Bowels.....	Entérites et autres maladies d'in- testins.....	1		
26	Liver diseases.....	Maladies du foie	1		1
27	Joint diseases	Maladies des articulations.....	1	1	1
28	Burns and Scalds.....	Brûlures.....	1		1
29	Other accidents.....	Autres accidents.....	1		1
30	Abscess.....	Abces	1		1
31	Atrophy and Debility.....	Atrophie et débilité.....	1	1	
Totals		Totaux	108	15	59

TABLEAU II. VILLE DE GALT.														
RELIGIONS.			NATIONALITIES. NATIONALITÉS.					OCCUPATIONS.						
Metho- dists.	Bap- tists.	Oth- ers.	Eng- lish.	Fren- ch.	Irish.	Scot- ch.	Oth- ers.	Agri- cul- tural.	Com- mer- cial.	Do- mestic	In- dus- trial.	Pro- fes- sional	La- bour- ers.	Not Classed.
Mé- tho- distes.	Bap- tistes.	Au- tres.	Ang- lais.	Fran- çais.	Irlan- dais.	Écos- sais.	Au- tres.	Agri- cole.	Com- mer- ciale.	Do- mesti- que.	In- dus- trielle	Pro- fes- sions.	Jour- na- liers.	Non Classé.
4			6		1	8	1	1	5		7	2	1	1
2			2		1	10		5			5	2	1	2
3	2		1		2	5	2	2	2		4		1	3
1		1	1		3	6		2	1		3		2	4
2	1		1			6		4	1		2			5
2			1		1	3	1	2	1		2			6
2			1		1	2	1	2			1			7
1			1			4			1		4			8
			1			2		2			1			9
1	2		3					1			1		1	10
1		1	2			1		1			2			11
1		1	2			1		1			1		1	12
			1			2			3					13
1					2						1		1	14
						2		2						15
2			2								1			16
1			1							1				17
					1				1					18
1			1								1			19
						1		1						20
						1					1			21
						1			1					22
			1									1		23
					1							1		24
1			1										1	25
						1					1			26
						1					1			27
						1		1						28
						1							1	29
			1			1					1			30
											1			31
26	5	3	30		13	60	5	27	16	1	41	5	9	9

TABLE II.

CITY OF ST. HYACINTHE.

DISEASES IN THE ORDER OF FATALITY.		Total Deaths.	RELIGIONS.		
MALADIES DANS L'ORDRE DE LA FATALITÉ.			—	—	—
		Total des décès.	Roman Catholics.	Ch. of Eng-land.	Pres-byte-riens.
			Catholiques Romains	Eglise d'Angle-terre.	Pres-byté-riens.
Atrophy and Debility.....	Atrophie et débilité.....	43	43		
Phthisis.....	Phthisie.....	22	22		
Old Age.....	Vieillesse.....	17	17		
Lung diseases.....	Affections pulmonaires.....	16	16		
Cerebro Spinal Affections.....	Affections cérébro-spinales.....	13	12		1
Diphtheria.....	Diphthérie.....	12	12		
Diarrhoeal Affections.....	Diarrhées.....	12	12		
Dentition.....	Dentition.....	11	11		
Heart and Blood Vessels Diseases.....	Maladies du cœur et des vaisseaux sanguins.....	7	7		
Cancer.....	Cancer.....	5	5		
Diseases of the Urinary organs.....	Maladies des voies urinaires.....	5	5		
Catarrhal Affections.....	Affections catharrales.....	4	4		
Paralysis.....	Paralysie.....	4	4		
Enteritis and other Affections of the Bowels.....	Entérites et autres maladies d'intestins.....	3	3		
Typhus, Enteric or Typhoid and continued fevers.....	Typhus, fièvres typhoïdes et fièvres continues.....	2	2		
Epilepsy and Convulsions.....	Epilepsie et convulsions.....	2	2		
Diseases of the Uterus.....	Maladies de l'uterus.....	2	2		
Other accidents.....	Autres accidents.....	2	2		
Whooping Cough.....	Coqueluche.....	1	1		
Erysipelas.....	Erysipèle.....	1	1		
Puerperal Fever.....	Fièvres puerpérales.....	1	1		
Other Constitutional Diseases.....	Autres maladies constitutionnelles.....	1	1		
Child Birth.....	Accouchement.....	1	1		
Apoplexy.....	Apoplexie.....	1	1		
Peritonitis.....	Péritonite.....	1	1		
Liver Diseases.....	Maladies du foie.....	1			1
Drowning.....	Noyades.....	1	1		
Suffocation.....	Suffocation.....	1	1		
Dropsy.....	Hydropisie.....	1	1		
Not specified and ill-defined.....	Non spécifiées et indéfinies.....	1	1		
Totals.....	Totaux.....	194	192		2

TABLEAU II. CITÉ DE ST. HYACINTHE.														
RELIGIONS.			NATIONALITIES. NATIONALITÉS.					OCCUPATIONS.						
Metho- dists.	Bap- tists.	Oth- ers.	Eng- lish.	Fren- ch.	Irish.	Scot- ch.	Oth- ers.	Agri- cul- tural.	Com- mer- cial.	Do- mestic	Indus- trial.	Pro- fes- sional	La- bour- ers.	Not Classed.
Mé- tho- distes.	Bap- tistes.	Au- tres.	An- glais.	Fran- çais.	Irlan- dais.	Écos- sais.	Au- tres.	Agri- cole.	Com- mer- ciale.	Do- mesti- que.	Indus- trielle	Pro- fes- sions.	Jour- na- liers.	Non Classé.
				43					3		19	2	16	3
				21	1				3		7	7	5	2
				17				6	1				5	3
							1	3			8	4		4
				15							9		1	5
				13						1				2
				12				1	3	3	5			6
									1		5		4	7
				12				2		1	7		1	8
				11										
				7					1			1	1	9
				5				1				1		10
				5							1		1	11
				4				1					3	12
				4							2			13
				3				1		1			1	14
				2							1		1	15
				2							1		1	16
				2								1		17
				2							1		1	18
				1				1						19
				1					1					20
				1									1	21
				1				1						22
				1							1			23
				1										24
				1							1			25
				1							1			26
				1					1					27
				1				1						28
				1									1	29
				1							1			30
				192	1		1	18	14	6	70	16	43	27

TABLE II.

CITY OF SOREL.

DISEASES IN THE ORDER OF FATALITY.			RELIGIONS.			
MALADIES DANS L'ORDRE DE LA FATALITÉ.			Total Deaths.	Roman Catholics.	Ch. of Eng.	Presbyterians.
			Total des décès.	—	—	—
				Ca-tho-liques Ro-mains	Eglise d'An-gle-terre.	Pres-byté-riens.
1	Diarrhoeal Affections.....	Diarrhées	54	54		
2	Atrophy and Debility.....	Atrophie et débilité.....	28	28		
3	Heart and Blood Vessels Diseases..	Maladies du cœur et des vaisseaux sanguins..	14	14		
4	Measles	Rougeole.....	12	12		
5	Dentition	Dentition	10	10		
6	Phthisis.....	Phthisie.....	9	9		
7	Paralysis	Paralyse	9	9		
8	Lung diseases.....	Affections pulmonaires.....	8	8		
9	Throat Affections.....	Affections de la gorge.....	8	8		
10	Hydrocephalus	Hydrocéphalie	7	7		
11	Whooping Cough	Coqueluche	6	6		
12	Epilepsy and Convulsions.....	Epilepsie et convulsions.....	4	4		
13	Enteritis and other Affections of the Bowels	Entérites et autres maladies d'intestins	4	4		
14	Cancer.....	Cancer.....	3	3		
15	Puerperal Fever.....	Fièvres puerpérales	2	2		
16	Cerebro Spinal Affections.....	Affections cérébro-spinales.....	2	2		
17	Other Accidents.....	Autres accidents.....	2	2		
18	Catarrhal Affections.....	Affections catharrales.....	1	1		
19	Typhus, Enteric or Typhoid and continued fevers	Typhus, fièvres typhoïdes et fièvres continues	1	1		
20	Erysipelas.....	Erysipèle.....	1	1		
21	Other Constitutional Diseases	Autres maladies constitutionnelles.....	1	1		
22	Child Birth.....	Accouchement.....	1	1		
23	Old Age.....	Vieillesse.....	1	1		
24	Apoplexy	Apoplexie.....	1	1		
25	Stomach diseases.....	Maladies de l'estomac.....	1	1		
26	Liver diseases.....	Maladies du foie.....	1	1		
27	Diseases of the Urinary organs.....	Maladies des voies urinaires.....	1	1		
28	Joint diseases	Maladies des articulations.....	1	1		
29	Drowning.....	Noyades.....	1	1		
Totals.....			194	194		
Totaux.....						

TABLEAU II. CITÉ DE SOREL.														
RELIGIONS.			NATIONALITIES. NATIONALITÉS.					OCCUPATIONS.						
Metho- dists.	Bap- tists.	Oth- ers.	Eng- lish.	Fren- ch.	Irish.	Scot- ch.	Oth- ers.	Agri- cul- tural.	Com- mer- cial.	Do- mestic	In- dus- trial.	Pro- fes- sional	La- bour- ers.	Not Classed.
Mé- tho- distes.	Bap- tistes.	Au- tres.	An- glais.	Fran- çais.	Irlan- dais.	Ecos- sais.	Au- tres.	Agri- cole.	Com- mer- ciale.	Do- mesti- que.	In- dus- trielle	Pro- fes- sions.	Jour- na- liers.	Non Classé.
			1	53				1	15	2	18	4	13	1
				28					5		10		7	6
			14								4	2	3	5
				12				1	7		1		3	
				10				1	3	1	4		1	
				9					1		6		2	
			1	7	1				2		1		1	5
				8				2	2				2	2
				8					3		2		3	
				7					4	1	1			1
				6					1		4		1	
				4					1		2		1	
				4					2				1	1
				3							1		2	
				2					1		1			
				2					1					
				1		1							1	1
				1					1					
				1							1			
				1										
				1							1			
				1										1
				1										1
				1									1	
				1									1	
			1											1
				1				1			1			
				1										
				1										
				3	189	1	1	6	49	4	61	6	43	25

TABLE II.		CITY OF FREDERICTON.			
DISEASES IN THE ORDER OF FATALITY. MALADIES DANS L'ORDRE DE LA FATALITÉ.		Total Deaths. — Total des décès.	RELIGIONS.		
			Roman Catholics.	Ch. of Eng- land.	Pres- byte- rians.
			— Catholiques Romains	— Eglise d'An- gle- terre.	— Pres- byté- riens.
Catarrhal Affections.....	Affections catharrales..	15	3	8	1
Phthisis	Phthisie.....	15	5	2	5
Lung diseases.....	Affections pulmonaires.....	14	3	2	4
Old Age.....	Vieillesse	10	4	3	2
Heart and Blood Vessels Diseases..	Maladies du cœur et des vaisseaux sanguins.....	10	2	2	2
Paralysis.....	Paralytie.....	9	3	1	1
Diarrhœal Affections.....	Diarrhées.	5	2	1	.....
Cancer.....	Cancer.....	5	2	2	.....
Enteritis and other Affections of the Bowels.....	Entérites et autres maladies d'in- testins	4	1	1	.....
Hydrocephalus	Hydrocéphalie.....	3	.....	1	2
Epilepsy and Convulsions.....	Epilepsie et convulsions.....	3	2	1	.....
Throat Affections.....	Affections de la gorge.....	3	.....	1	.....
Diphtheria.....	Diphthérie.....	2	.....	2	.....
Rheumatism.....	Rhumatisme.....	2	1	1	.....
Cerebro Spinal Affections.....	Affections cérébro-spinales.....	2	.....	1	.....
Liver diseases	Maladies du foie.....	2	1	.....	.....
Diseases of the Urinary organs.....	Maladies des voies urinaires..	2	.....	1	.....
Drowning	Noyades.....	2	.....	.....	.....
Dropsy.....	Hydropisie.....	2	2	.....	.....
Not specified and ill-defined.....	Non spécifiées et indéfinies.....	2	.....	.....	.....
Whooping Cough.....	Coqueluche.....	1	.....	.....	.....
Puerperal Fever	Fièvres puerpérales.....	1	.....	1	.....
Septicæmia.....	Septicémie.....	1	.....	.....	.....
Cyanosis	Cyanosis	1	.....	1	.....
Apoplexy.....	Apoplexie	1	.....	1	.....
Fractures and contusions.....	Fractures et contusions.....	1	.....	.....	.....
Gunshot and wounds.....	Blessures et armes à feu.....	1	.....	1	.....
Other accidents.....	Autres accidents.....	1	.....	1	.....
Suicide.....	Suicide.....	1	1	.....	.....
Abscess.....	Abscès.....	1	.....	1	.....
Atrophy and Debility.....	Atrophie et débilité	1	.....	.....	.....
Totals.....	Totaux	123	32	36	17

TABLE II.

TOWN OF ST. JOHNS, P.Q.

DISEASES IN THE ORDER OF FATALITY. — MALADIES DANS L'ORDRE DE LA FATALITÉ.		Total Deaths. — Total des décès.	RELIGIONS.		
			Roman Catholics.	Ch. of Eng- land.	Pres- byte- rians.
			—	—	—
			Catholiques Romaines	Eglise d'Angle- terre.	Pres- byté- riens.
1	Atrophy and Debility	Atrophie et débilité.....	25	25	
2	Lung diseases	Affections pulmonaires.....	15	15	
3	Diarrheal Affections	Diarrhées.....	12	12	
4	Old Age	Vieillesse.....	8	8	
5	Cerebro Spinal Affections.....	Affections cérébro-spinales.....	7	7	
6	Catarrhal Affections.....	Affections catharrales.....	6	6	
7	Heart and Blood Vessels Diseases..	Maladies du cœur et des vaisseaux sanguins.....	5	5	
8	Measles	Rougeole.....	4	4	
9	Typhus, Enteric or Typhoid and continued fevers	Typhus, fièvres typhoïdes et fièvres continues.....	3	3	
10	Paralysis.....	Paralysie.....	3	3	
11	Throat Affections.....	Affections de la gorge.....	3	3	
12	Liver diseases	Maladies du foie.....	3	3	
13	Dentition	Dentition	3	3	
14	Scarlet Fever.....	Fièvre scarlatine	2	2	
15	Phthisis.....	Phthisie.....	2	2	
16	At Birth	A la naissance	2	2	
17	Epilepsy and Convulsions	Épilepsie et convulsions	2	2	
18	Enteritis and other Affections of the Bowels	Entérites et autres maladies d'in- testins.....	2	2	
19	Cancer.....	Cancer	1	1	
20	Child Birth	Accouchement.....	1	1	
21	Apoplexy	Apoplexie.....	1	1	
22	Stomach diseases.....	Maladies de l'estomac.....	1	1	
23	Peritonitis.....	Péritonite.....	1	1	
24	Joint diseases.....	Maladies des articulations.....	1	1	
25	Drowning.....	Noyades.....	1	1	
26	Railway accidents	Accidents par les chemins de fer.....	1	1	
27	Not specified and ill-defined.....	Non spécifiées et indéfinies.....	1	1	
Totals.....		Totaux.....	116	116	

TABLEAU II. VILLE DE ST. JEAN, P.-Q.														
RELIGIONS.			NATIONALITIES. NATIONALITÉS.					OCCUPATIONS.						
Me-tho-dist.	Bap-tists.	Oth-ers.	Eng-lish.	Fren-ch.	Irish.	Scot-ch.	Oth-ers.	Agricul-tural.	Com-mercial.	Do-mestic	Indus-trial.	Pro-fes-sional	La-bour-ers.	Not Classed.
Me-tho-dist.	Bap-tistes.	Au-tres.	An-glais.	Fran-çais.	Irlan-dais.	Ecos-sais.	Au-tres.	Agricole.	Com-merciale.	Domestique.	Indus-trielle	Pro-fessions.	Jour-na-liers.	Non Classé.
				24	1			1	6	1	4	1	11	1
			2	12	1			1	1		2	4	5	2
				11	1			1	1		5	1	4	3
			2	5	1			1	2		1		3	1
				6	1			2	2		2	1	2	
				6				1	1		2		2	6
				5				1			4			7
				4						1	2		1	8
				3				1					2	9
				2	1			1			1	1		10
				3				2			1			11
				3						1	2			12
				3					1				2	13
				2					1		1			14
				2						1			1	15
				2					1		1			16
				2				1	1					17
				2					1				1	18
				1									1	19
				1							1			20
				1							1			21
				1					1					22
				1				1						23
				1					1					24
				1							1			25
				1							1			26
				1							1			27
			4	106	6			12	20	4	33	8	35	4

TABLE III.

DEATHS OF ILLEGITIMATE CHILDREN.

TABLEAU III.

DÉCÈS D'ENFANTS ILLÉGITIMES.

TABLE III. DEATHS OF ILLEGITIMATE CHILDREN.

	CITIES. — VILLES.	Totals. — Totaux.	AGE BY MONTHS.					
			0 to 1.	1 to 2.	2 to 3.	3 to 4.	4 to 5.	5 to 6.
			0 à 1.	1 à 2.	2 à 3.	3 à 4.	4 à 5.	5 à 6.
1	Montreal.....	557	349	118	36	16	12	7
2	Toronto.....	43	6	8	8	5	5	1
3	Quebec.....	159	62	6	42	23	11	8
4	Hamilton.....	1						
5	Halifax.....	44	2	8	9	6	3	5
6	Ottawa.....	114	42	66	4	2		
7	St. John, N.B.....							
8	London.....	3	1	1				
9	Winnipeg.....							
10	Kingston.....	4	1	1	1			
11	Victoria, B.C.....							
12	Brantford.....							
13	Charlottetown.....	3	1	2				
14	Hull.....							
15	Guelph.....	1						
16	St. Thomas.....							
17	Windsor, Ont.....							
18	Sherbrooke.....							
19	Belleville.....							
20	Peterborough.....							
21	Stratford.....							
22	Chatham, Ont.....							
23	Brockville.....							
24	Woodstock, Ont.....	1	1					
25	Three Rivers.....							
26	Galt.....							
27	St. Hyacinthe.....							
28	Sorel.....							
29	Fredericton.....	1					1	
30	St. John's, P.Q.....							

TABLE IV.

RATIOS OF MORTALITY ACCORDING TO AGES.

TABLEAU IV.

PROPORTIONS DE LA MORTALITÉ PAR AGES.

TABLE IV. RATIOS OF MORTALITY ACCORDING TO AGES.

	CITIES. — VILLES.	Popu- lation.	Deaths Total	Ratio per 1,000 of Popu- lation. — Propor- tion par 1,000 de popu- lation.	Deaths under 1 year.	Ratio per 1,000 Deaths	Deaths from 1 to 5 years.	Ratio per 1,000 Deaths	Deaths from 5 to 15 years.	Ratio per 1,000 Deaths	D'ths from 15 to 25 years.	Ratio per 1,000 Deaths
		Popu- lation.	Décès.	Propor- tion par 1,000 de popu- lation.	Décès au- dessous 1 an.	Pro- por- tion par 1,000 décès.	Décès de 1 à 5 ans.	Pro- por- tion par 1,000 décès.	Décès de 5 à 15 ans.	Pro- por- tion par 1,000 décès.	Décès de 15 à 25 ans.	Pro- por- tion par 1,000 décès.
1	Montreal.....	216,650	6,091	28·11	3,007	493·68	804	132·00	254	41·70	284	46·63
2	Toronto.. . . .	181,220	2,830	15·61	851	300·71	400	141·34	223	78·80	205	72·44
3	Quebec.....	63,090	2,594	41·11	1,029	396·69	518	199·69	294	113·34	100	38·55
4	Hamilton.. . . .	48,980	795	16·23	197	247·80	63	79·25	42	52·83	57	71·70
5	Halifax	*44,805	919	20·51	250	272·03	131	142·55	72	78·35	74	80·52
6	Ottawa	44,154	943	21·35	390	413·57	138	146·34	43	45·60	67	71·05
7	St. John, N.B..	39,179	774	19·75	163	210·59	107	138·24	50	64·60	69	89·15
8	London.....	31,977	353	11·03	66	186·97	28	79·32	25	70·82	36	101·98
9	Winnipeg	25,642	376	14·66	134	356·38	58	154·26	22	58·51	35	93·08
10	Kingston.	19,264	318	16·50	52	163·52	25	78·62	26	81·76	28	88·05
11	Victoria, B.C..	16,841	326	19·35	69	211·66	24	73·62	9	27·61	26	79·75
12	Brantford.....	†15,324	181	11·81	50	276·24	17	93·92	9	49·73	11	60·77
13	Charlottetown..	11,374	172	15·12	39	226·74	9	52·33	14	81·39	12	69·77
14	Hull.....	11,265	339	30·09	148	436·58	91	268·43	20	58·99	5	14·75
15	Guelph.....	10,539	162	15·37	29	179·01	17	104·94	30	185·19	14	86·42
16	St. Thomas.....	10,370	140	13·50	21	150·00	13	92·86	11	78·57	10	71·43
17	Windsor, Ont..	10,322	154	14·91	37	240·26	22	142·86	12	77·92	17	110·39
18	Sherbrooke	10,110	317	31·35	107	337·54	72	227·13	34	107·26	12	37·85
19	Belleville	9,914	126	12·70	16	126·98	12	95·24	4	31·75	10	79·36
20	Peterborough..	9,717	163	16·77	29	177·92	22	134·97	11	67·48	11	67·48
21	Stratford.....	9,501	97	10·20	24	247·42	8	82·47	12	123·71	7	72·16
22	Chatham, Ont..	9,052	125	13·80	25	200·00	21	168·00	10	80·00	11	88·00
23	Brockville.....	8,793	107	12·16	21	196·26	7	65·42	6	56·08	13	121·50
24	Woodstock, Ont	8,612	75	8·70	19	253·34	4	53·33	4	53·33	5	66·67
25	Three Rivers...	8,334	282	33·83	117	414·90	49	173·76	12	42·55	12	42·55
26	Galt	7,535	108	14·33	17	157·41	5	46·29	8	74·08	12	111·11
27	St. Hyacinthe..	7,016	194	27·65	68	350·51	25	128·87	9	46·39	6	30·93
28	Sorel	6,669	194	29·08	86	443·30	39	201·03	8	41·24	2	10·31
29	Fredericton....	6,502	123	18·91	24	195·12	4	32·52	3	24·39	12	97·56
30	St. John's, P.Q.	4,772	116	24·30	42	262·07	25	215·52	4	34·48	6	51·73

*Including Dartmouth.

†Including territory annexed in July last.

TABLEAU IV.

PROPORTIONS DE LA MORTALITÉ PAR AGES.

Deaths from 25 to 35 years.	Ratio per 1,000 Deaths.	Deaths from 35 to 45 years.	Ratio per 1,000 Deaths.	Deaths from 45 to 55 years.	Ratio per 1,000 Deaths.	Deaths from 55 to 65 years.	Ratio per 1,000 Deaths.	Deaths from 65 to 75 years.	Ratio per 1,000 Deaths.	Deaths over 75 years.	Ratio per 1,000 Deaths.	
Décès de 25 à 35 ans.	Proportion par 1,000 décès.	Décès de 35 à 45 ans.	Proportion par 1,000 décès.	Décès de 45 à 55 ans.	Proportion par 1,000 décès.	Décès de 55 à 65 ans.	Proportion par 1,000 décès.	Décès de 65 à 75 ans.	Proportion par 1,000 décès.	Décès au-dessus de 75 ans.	Proportion par 1,000 décès.	
346	56·80	265	43·51	278	45·64	245	40·22	288	47·28	320	52·54	1
229	80·92	198	69·97	171	60·42	175	61·84	188	66·43	189	66·78	2
95	36·62	91	35·08	81	31·23	91	35·08	145	55·90	149	57·44	3
56	70·44	62	77·99	65	81·76	88	110·69	95	119·50	69	86·79	4
55	59·85	56	60·94	69	75·08	42	45·70	76	82·70	93	101·20	5
52	55·14	52	55·14	52	55·14	31	32·88	57	60·45	60	63·63	6
59	76·23	51	65·89	48	62·02	66	85·27	69	89·15	92	118·86	7
28	79·32	27	76·49	28	79·32	33	93·49	36	101·98	46	130·31	8
39	103·72	31	82·45	23	61·17	16	42·55	11	29·26	7	18·62	9
26	81·76	19	59·75	20	62·90	30	94·34	43	135·22	47	147·80	10
60	184·05	35	107·36	41	125·77	24	73·62	27	82·82	11	33·74	11
14	77·35	11	60·77	15	82·87	18	99·45	16	88·40	20	110·50	12
13	75·58	12	69·77	12	69·77	7	40·70	26	151·16	28	162·79	13
16	47·20	12	35·40	15	44·25	11	32·45	15	44·25	6	17·70	14
10	61·73	10	61·73	8	49·38	11	67·90	15	92·59	18	111·11	15
24	171·43	13	92·86	5	35·71	9	64·28	14	100·00	20	142·86	16
12	77·92	8	51·95	9	58·44	16	103·90	7	45·45	13	84·42	17
19	59·94	10	31·55	11	34·70	20	63·09	14	44·16	18	56·78	18
11	87·30	12	95·24	9	71·43	15	119·05	20	158·73	17	134·92	19
10	61·35	17	104·30	11	67·48	11	67·48	17	104·30	24	147·24	20
5	51·55	4	41·24	6	61·86	10	103·09	4	41·24	17	175·26	21
11	88·00	8	64·00	4	32·00	9	72·00	13	104·00	13	104·00	22
5	46·73	12	112·15	9	84·11	9	84·11	9	84·11	16	149·53	23
12	160·00	4	53·33	7	93·33	3	40·00	9	120·00	8	106·67	24
17	60·29	15	53·19	9	31·92	10	35·46	15	53·19	25	88·65	25
10	92·60	5	46·29	5	46·29	13	120·37	18	166·67	15	138·89	26
11	56·70	14	72·16	4	20·62	6	30·93	23	118·56	28	144·33	27
6	30·93	7	36·08	4	20·62	4	20·62	18	92·78	20	103·09	28
12	97·56	5	40·65	8	65·04	17	138·21	12	97·56	26	211·39	29
9	77·59	4	34·48	2	17·24	5	43·10	5	43·10	14	120·69	30

TABLE V.

RATIOS OF MORTALITY ACCORDING TO CLASSES OF OCCUPATION.

TABLEAU V.

PROPORTIONS DE LA MORTALITÉ SELON LES CLASSES DES
OCCUPATIONS.

TABLE V. RATIOS OF MORTALITY ACCORDING TO CLASSES OF OCCUPATION.

CITIES. — VILLES	INDUSTRIAL CLASS. — CLASSE INDUSTRIELLE.			LABOURERS. — JOURNALIERS.	
	Total Deaths.	Deaths.	Ratio per 1,000 Deaths.	Deaths.	Ratio per 1,000 Deaths.
	Total des décès.	Décès.	Proportion par 1,000 décès.	Décès.	Proportion par 1,000 décès.
1 Montreal.	6,091	2,151	353·14	1,163	190·94
2 Toronto.	2,830	924	326·50	538	190·11
3 Quebec.	2,594	971	374·33	538	207·40
4 Hamilton.	795	302	379·87	137	172·33
5 Halifax.	919	256	278·56	160	174·10
6 Ottawa.	943	211	223·75	283	300·11
7 St. John, N.B.	774	249	321·70	217	280·36
8 London.	353	109	308·78	101	286·12
9 Winnipeg.	376	68	180·85	98	260·64
10 Kingston.	318	87	273·59	80	251·57
11 Victoria, B.C.	326	96	294·48	50	153·37
12 Brantford.	181	81	447·51	39	215·47
13 Charlottetown.	172	47	273·25	45	261·63
14 Hull.	339	21	61·95	260	766·96
15 Guelph.	162	66	407·41	26	160·50
16 St. Thomas.	140	28	200·00	18	128·57
17 Windsor, Ont.	154	39	253·25	37	240·26
18 Sherbrooke.	317	98	309·15	128	403·79
19 Belleville.	126	29	230·16	35	277·78
20 Peterborough.	163	64	392·64	31	190·18
21 Stratford.	97	29	298·97	16	164·95
22 Chatham, Ont.	125	20	160·00	56	448·00
23 Brockville.	107	29	271·03	22	205·61
24 Woodstock, Ont.	75	28	373·33	12	160·00
25 Three Rivers.	282	58	205·67	127	450·36
26 Galt.	108	41	379·63	9	83·33
27 St. Hyacinthe.	194	70	360·82	43	221·65
28 Sorel.	194	61	314·43	43	221·65
29 Fredericton.	123	34	276·43	23	186·99
30 St. John's, P.Q.	116	33	284·48	35	301·73

TABLEAU V. PROPORTION DE LA MORTALITÉ SELON LES CLASSES DES OCCUPATIONS.

COMMERCIAL. COMMERCIALE.		DOMESTIC. DOMESTIQUE.		PROFESSIONAL. PROFESSIONS.		OTHERS. AUTRES.		
Deaths. Décès.	Ratio per 1,000 Deaths. Proportion par 1,000 décès.	Deaths. Décès.	Ratio per 1,000 Deaths. Proportion par 1,000 décès.	Deaths. Décès.	Ratio per 1,000 Deaths. Proportion par 1,000 décès.	Deaths. Décès.	Ratio per 1,000 Deaths. Proportion par 1,000 décès.	
1,401	230·01	265	43·51	242	39·73	869	142·67	1
702	248·06	174	61·48	174	61·48	318	112·37	2
651	250·97	38	14·65	142	54·74	254	97·91	3
200	251·57	39	49·06	39	49·06	78	98·11	4
276	300·33	81	88·14	60	65·29	86	93·58	5
147	155·88	42	44·54	105	111·35	155	164·37	6
224	289·41	26	33·59	34	43·93	24	31·01	7
64	181·30	9	25·50	25	70·82	45	127·48	8
98	260·64	30	79·78	29	77·13	53	140·96	9
82	257·86	17	53·46	21	66·04	31	97·48	10
106	325·15	33	101·23	15	46·01	26	79·76	11
30	165·75	3	16·58	9	49·72	19	104·97	12
42	244·19	7	40·70	5	29·07	26	151·16	13
17	50·15	2	5·90	5	14·75	34	100·29	14
30	185·18	4	24·69	6	37·04	30	185·18	15
64	457·14	2	14·29	13	92·86	15	107·14	16
38	246·75	7	45·46	9	58·44	24	155·84	17
49	154·57	11	34·70	6	18·93	25	78·86	18
34	269·84	3	23·81	7	55·55	18	142·86	19
28	171·78	5	30·68	10	61·35	25	153·37	20
28	288·66	6	61·85	1	10·31	17	175·26	21
19	152·00	5	40·00	10	80·00	15	120·00	22
20	186·92	2	18·69	6	56·07	28	261·68	23
13	173·33	1	13·34	6	80·00	15	200·00	24
41	145·39	7	24·82	8	28·37	41	145·39	25
16	148·15	1	9·26	5	46·30	36	333·33	26
14	72·17	6	30·93	16	82·47	45	281·96	27
49	252·58	4	20·62	6	30·93	31	159·79	28
20	162·60	13	105·69	17	138·21	16	130·08	29
20	172·41	4	34·48	8	68·97	16	137·93	30

TABLE VI.

COMPARATIVE MORTALITY BY MONTHS.

TABLEAU VI.

ÉTAT COMPARATIF DE LA MORTALITÉ PAR MOIS.

TABLE VI. COMPARATIVE MORTALITY FOR EACH MONTH OF THE YEARS 1890 AND 1891, BY 1,000 OF THE POPULATION.

	CITIES. — VILLES.	January.		February.		March.		April.		May.	
		—		—		—		—		—	
		Janvier.		Février.		Mars.		Avril.		Mai.	
		1890.	1891.	1890.	1891.	1890.	1891.	1890.	1891.	1890.	1891.
1	Montreal.....	3·05	1·88	1·89	1·93	2·06	2·15	2·30	2·24	2·55	2·36
2	Toronto	1·74	1·16	1·35	1·03	1·47	1·25	1·51	1·23	1·34	1·23
3	Quebec	3·98	3·01	2·69	2·76	2·33	3·39	2·06	2·50	2·53	3·39
4	Hamilton	2·00	1·37	1·48	1·48	1·29	1·46	1·50	1·82	1·93	1·87
5	Halifax ...	2·29	2·00	1·70	1·26	1·77	1·51	1·77	1·95	2·22	1·81
6	Ottawa	2·34	1·58	1·77	1·54	1·47	1·95	1·74	1·24	2·09	1·65
7	St. John, N.B. .	2·41	1·43	1·76	1·30	1·64	1·76	1·56	1·64	1·46	1·64
8	London.....	1·83	1·06	0·86	0·90	0·86	1·33	1·03	1·23	1·13	0·96
9	Winnipeg.....	2·72	0·96	0·92	1·12	1·40	1·04	0·88	0·92	1·72	1·20
10	Kingston.....	3·66	1·42	2·18	1·09	1·91	1·85	1·42	1·85	1·85	1·91
11	Victoria, B.C.....	2·24	1·87	1·15	1·39	1·81	1·63	1·21	1·39	0·84	1·75
12	Brantford.....	2·03	0·70	1·35	0·56	1·12	0·77	1·05	0·63	1·05	1·12
13	Charlottetown.....	1·27	0·72	1·36	1·27	1·45	1·27	1·09	1·45	0·90	2·09
14	Hull	2·52	2·00	2·08	1·82	2·26	3·04	2·00	2·69	3·13	2·08
15	Guelph	1·92	1·15	1·15	0·86	0·67	0·19	0·76	0·86	1·44	0·86
16	St. Thomas.....	0·90	1·30	0·90	1·70	0·30	1·70	1·10	1·60	1·60	1·10
17	Windsor, Ont.....	2·10	1·30	0·60	1·70	0·90	1·30	1·30	1·20	1·10	1·50
18	Sherbrooke.....	2·74	2·11	3·48	1·51	1·90	3·63	1·79	2·72	2·43	3·02
19	Belleville	2·04	0·81	2·14	1·22	1·63	0·91	1·42	1·02	0·91	1·22
20	Peterborough.....	1·50	1·07	0·64	1·07	1·50	2·15	0·32	1·93	1·50	1·72
21	Stratford.....	*	1·08	*	0·54	*	1·08	*	0·97	*	1·41
22	Chatham, Ont	2·58	1·48	1·29	1·48	1·88	1·03	1·17	1·14	1·29	·91
23	Brockville.....	3·10	0·91	1·14	1·49	1·72	1·37	1·83	1·26	1·03	0·91
24	Woodstock, Ont.....	1·52	1·17	1·17	0·82	0·58	1·05	1·29	1·05	0·82	0·47
25	Three Rivers.....	4·16	3·21	2·14	3·09	3·69	2·50	3·45	3·45	2·50	2·85
26	Galt	1·77	0·95	1·36	1·23	1·36	1·64	2·05	1·36	2·46	1·77
27	St. Hyacinthe.....	4·85	2·85	3·28	0·85	2·14	2·14	1·28	2·00	2·14	2·42
28	Sorel	3·33	2·42	1·81	1·81	1·81	0·90	2·72	1·21	2·12	1·21
29	Fredericton	1·53	0·92	1·53	1·69	0·92	2·00	1·07	3·53	0·76	2·15
30	St. Johns, P.Q.....	3·82	1·91	1·48	0·85	3·19	1·48	2·76	3·19	3·19	2·12

* No returns.—Pas de rapports.

TABLEAU VI. ÉTAT COMPARATIF DE LA MORTALITÉ, POUR CHAQUE MOIS
DES ANNÉES 1890 ET 1891, PAR 1,000 DE LA POPULATION.

June.		July.		August.		September.		October.		November.		December.		
Juin.		Juillet.		Août.		Septembre.		Octobre.		Novembre.		Décembre.		
1890.	1891.	1890.	1891.	1890.	1891.	1890.	1891.	1890.	1891.	1890.	1891.	1890.	1891.	
3.11	3.23	3.72	3.48	2.48	2.90	2.09	2.18	2.16	2.04	1.67	1.66	2.01	2.23	1
1.00	1.12	1.38	1.10	1.71	1.69	1.22	1.63	1.14	1.47	1.14	1.37	1.35	1.39	2
2.11	3.38	5.00	5.62	3.19	5.02	2.46	3.51	2.53	3.18	2.14	2.44	2.52	2.88	3
1.72	0.98	1.78	1.22	1.89	1.44	1.37	1.18	1.07	1.24	1.24	1.22	1.31	1.34	4
2.27	1.60	1.86	1.63	2.48	2.68	2.45	1.60	2.25	1.80	1.88	1.47	2.04	1.67	5
1.70	1.65	2.85	2.83	1.88	2.33	2.06	1.67	1.28	1.94	1.24	1.29	1.33	1.78	6
0.92	1.94	1.23	1.30	1.71	2.16	1.48	1.58	2.00	1.78	1.33	1.53	1.46	1.68	7
0.63	0.90	0.56	0.78	1.03	1.09	1.06	0.87	0.73	0.93	1.00	0.75	1.20	0.59	8
0.96	0.92	1.36	2.30	1.72	1.55	1.36	1.13	1.20	1.13	1.20	1.28	0.68	1.24	9
1.09	0.76	1.36	1.14	1.80	1.97	1.36	0.83	1.20	1.40	1.09	1.14	1.96	1.55	10
1.51	0.90	1.15	2.01	2.30	1.72	1.27	2.37	1.21	1.48	0.96	1.30	0.96	1.66	11
0.75	0.91	1.47	1.25	1.40	1.80	1.05	1.33	0.91	1.37	0.84	0.97	0.84	1.43	12
1.72	1.00	1.45	0.52	2.09	2.19	1.36	1.67	1.18	1.58	1.09	0.87	1.72	0.70	13
3.30	2.78	5.47	3.72	3.82	2.92	2.69	2.13	2.26	1.86	2.08	2.04	1.73	2.66	14
0.96	1.05	1.15	1.51	1.63	2.37	1.25	1.70	1.05	1.89	0.57	1.51	1.05	1.42	15
1.00	0.60	0.90	0.77	0.80	1.15	1.00	0.67	1.40	0.86	0.80	1.25	1.20	1.06	16
1.10	0.80	1.50	1.84	2.30	0.87	1.40	1.16	1.00	1.16	1.30	0.87	1.60	1.45	17
1.90	3.83	3.93	2.96	2.62	3.75	2.01	3.26	2.52	2.07	1.51	1.58	1.71	1.18	18
1.42	1.12	1.73	0.50	0.81	1.10	2.34	1.61	1.12	1.00	0.81	0.90	1.32	1.31	19
0.43	1.18	1.07	1.33	0.75	2.16	0.96	1.64	1.93	0.92	1.07	0.72	1.07	1.23	20
"	0.54	*	0.73	*	1.15	*	0.84	*	0.31	*	0.94	*	0.63	21
0.70	0.57	0.68	0.77	1.26	1.54	1.37	1.10	0.45	1.76	1.37	0.77	1.37	1.43	22
1.37	0.45	1.95	1.02	1.72	1.36	1.14	1.13	0.91	1.02	0.80	1.02	1.49	0.22	23
0.47	0.35	0.70	0.58	1.17	0.92	0.58	0.92	0.94	0.58	0.70	0.58	0.58	0.23	24
2.50	2.50	4.40	4.31	3.69	2.75	2.02	2.03	2.38	2.03	1.78	1.91	1.42	2.99	25
1.23	1.23	0.54	1.19	0.41	0.53	0.95	1.45	0.95	0.92	0.95	1.45	0.54	0.79	26
2.85	2.00	4.42	2.42	3.57	2.56	2.14	2.99	1.57	1.99	2.00	2.13	1.14	3.27	27
1.96	1.81	3.03	3.89	1.81	2.84	2.27	2.99	1.21	3.89	2.57	3.44	1.96	2.69	28
0.76	1.84	2.15	0.61	1.53	1.53	0.46	0.92	1.69	1.53	1.38	1.23	1.69	0.92	29
1.06	1.06	2.76	2.72	3.82	3.56	1.27	2.30	2.12	2.72	0.42	0.41	0.85	2.09	30

TABLE VII.

COMPARATIVE MORTALITY FROM 15 PRINCIPAL CAUSES OF DEATH,
BY 1,000 OF THE POPULATION.

TABLEAU VII.

ETAT COMPARATIF DE LA MORTALITÉ DUE À 15 CAUSES PRINCIPALES DE DÉCÈS, PAR 1,000 DE LA POPULATION.

TABLE VII.—COMPARATIVE MORTALITY FROM 15 PRINCIPAL CAUSES OF DEATH BY 1,000 OF THE POPULATION.

	CITIES. — VILLES.	Diarrhoeal Affections — Diarrhées.	Atrophy and Debility. — Atrophie et débilitéé.	Lung Diseases. — Affections pul- monaires.	Phthisis. — Phthisie.	Cerebro- Spinal Affections — Affections cérébro- spinales.	Heart and Blood Vessels Diseases. — Maladies du cœur et des vaisseaux sanguins.	Enteritis and other Affections of the Bowels. — Entérites et autres maladies d'intestins
1	Montreal.....	4.59	3.61	3.24	2.19	2.15	1.22	1.38
2	Toronto	1.00	1.21	1.85	1.29	0.71	1.03	0.48
3	Quebec.....	3.31	4.53	3.48	2.52	5.27	1.33	0.80
4	Hamilton.....	0.89	1.00	2.47	1.32	1.06	1.42	0.61
5	Halifax.....	1.58	2.00	2.18	2.34	1.33	1.20	0.29
6	Ottawa.....	3.60	1.42	1.51	2.31	0.72	0.90	0.61
7	St. John, N.B....	1.25	1.19	3.01	3.26	0.94	1.19	0.35
8	London.....	0.53	0.50	1.18	1.56	0.53	0.68	0.40
9	Winnipeg	2.69	1.09	1.24	1.52	0.50	0.66	0.50
10	Kingston.....	0.72	2.28	1.55	2.28	0.67	1.14	0.72
11	Victoria, B.C.....	1.42	0.41	2.79	2.13	0.77	1.72	1.00
12	Brantford.....	1.43	0.26	0.84	1.37	0.52	0.65	0.58
13	Charlottetown.....	1.58	1.23	2.11	2.11	0.35	0.79	0.43
14	Hull.....	0.44	12.96	2.04	1.50	0.62	0.26	0.62
15	Guelph.....	1.04	1.23	2.27	0.85	0.37	0.75	0.56
16	St. Thomas.....	0.86	0.09	1.44	1.63	0.38	0.77	1.06
17	Windsor, Ont.....	0.77	0.67	2.13	1.74	1.16	1.16	0.38
18	Sherbrooke.....	3.46	3.06	2.37	2.76	1.38	1.28	1.38
19	Belleville	1.61	0.30	1.51	2.01	0.30	0.50	0.50
20	Peterborough.....	0.92	0.92	3.08	1.23	1.02	0.92	1.23
21	Stratford.....	0.42	0.21	0.63	0.94	0.21	0.73	0.21
22	Chatham, Ont.....	0.66	0.88	1.21	2.09	0.88	0.44	0.22
23	Brockville	0.68	0.11	1.36	1.47	0.34	0.79	0.22
24	Woodstock, Ont.....	0.46	0.11	1.27	1.04	0.34	0.69	0.11
25	Three Rivers.....	3.11	0.35	1.55	2.75	1.43	1.07	0.59
26	Galt.....	0.66	0.13	2.12	1.32	0.66	1.72	0.13
27	St. Hyacinthe.....	1.71	6.12	2.28	3.13	1.85	0.99	0.42
28	Sorel.....	8.09	4.19	1.19	1.34	0.29	2.09	0.59
29	Fredericton.....	0.76	0.15	2.15	2.30	0.30	1.53	0.61
30	St. Johns, P.Q.....	2.51	5.23	3.14	0.41	1.46	1.04	0.41

TABLEAU VII.—ÉTAT COMPARATIF DE LA MORTALITÉ DUE À 15 CAUSES
PRINCIPALES DE DÉCÈS, PAR 1,000 DE LA POPULATION.

Epilepsy and Convulsions. Epilepsie et convulsions.	Diphtheria. Diphthérie.	Throat Affections. Affections de la gorge.	Diseases of the Urinary Organs. Maladies des voies uri- naires.	Paralysis. Paralysie.	Cancer.	Typhus, Enteric or Typhoid and Continued Fevers. Typhus, fièvres typhoïdes et fièvres continues.	Catarrhal Affections. Affections catharrales.	
0·68	0·30	0·42	0·51	0·43	0·45	0·34	0·14	1
0·70	0·97	0·39	0·45	0·28	0·34	0·64	0·03	2
0·74	6·35	0·31	0·17	0·95	0·34	0·30	0·38	3
0·55	0·20	0·18	0·55	0·51	0·63	0·20	0·24	4
1·62	1·62	0·51	0·60	0·26	0·53	0·17	0·11	5
0·33	0·61	0·24	0·27	0·49	0·38	0·20	0·06	6
1·17	0·45	0·89	0·30	0·58	0·17	0·25	0·15	7
0·50	0·31	0·18	0·56	0·50	0·28	0·25	0·18	8
0·42	0·23	0·15	0·74	0·11	0·31	0·74	0·19	9
0·67	0·57	0·20	0·46	0·51	0·46	0·57	0·10	10
0·83	0·05	0·11	0·47	0·47	0·65	0·77	.....	11
0·65	0·13	0·32	0·39	0·26	0·45	0·52	0·06	12
0·52	.....	0·43	0·61	0·35	0·26	0·61	0·61	13
0·17	2·48	0·88	0·17	0·79	0·17	0·17	0·08	14
0·37	3·60	.....	0·47	0·37	0·37	0·18	.....	15
0·57	.....	0·38	.....	0·86	0·48	0·28	0·19	16
0·67	0·48	0·19	0·48	0·38	0·67	0·38	.....	17
0·49	3·06	0·69	0·29	0·49	0·49	0·59	0·39	18
0·10	.....	0·30	0·40	0·90	0·50	0·20	.....	19
0·20	0·92	0·30	0·72	0·10	0·10	0·51	0·10	20
0·63	1·57	.....	0·31	0·10	0·42	0·10	0·21	21
0·77	0·11	0·33	0·66	0·55	0·44	0·55	0·55	22
0·90	.....	0·11	0·45	0·45	0·68	0·34	.....	23
0·58	.....	.....	0·23	0·23	.....	0·46	0·11	24
1·31	0·83	0·47	0·11	0·95	0·35	0·59	2·63	25
0·39	0·13	0·39	0·92	0·39	0·79	0·26	0·26	26
0·28	1·71	.....	0·71	0·57	0·71	0·28	0·57	27
0·59	.....	1·19	0·14	1·34	0·44	0·14	0·14	28
0·46	0·30	0·46	0·30	1·38	0·76	.....	2·30	29
0·41	.....	0·62	.....	0·62	0·20	0·62	1·25	30

TABLE VIII.

COMPARATIVE MORTALITY FROM 15 PRINCIPAL CAUSES OF DEATH,
BY 1,000 DEATHS.

TABLEAU VIII.

ÉTAT COMPARATIF DE LA MORTALITÉ DUE À 15 CAUSES PRINCIPALES DE DÉCÈS, PAR 1,000 DÉCÈS.

TABLE VIII—COMPARATIVE MORTALITY FROM 15 PRINCIPAL CAUSES OF DEATH
BY 1,000 DEATHS.

	CITIES. — VILLES.	Diarrheal Affections — Diarrhées.	Atrophy and Debility. — Atrophie et débilité	Lung Diseases. — Affections pul- monaires.	Phthisis. — Phthisie.	Cerebro Spinal Affections — Affections cérébro- spinales.	Heart and Blood Vessels Diseases. — Maladies du cœur et des vaisseaux sanguins.	Enteritis and other Affections of the Bowels. — Entérites et autres maladies d'intestins
1	Montreal	163·35	128·71	115·41	78·14	76·50	43·50	49·25
2	Toronto	64·66	77·73	118·72	83·03	45·93	66·43	30·74
3	Quebec	80·57	110·25	84·81	61·29	128·37	32·38	19·66
4	Hamilton	55·34	61·63	152·02	81·76	65·40	88·05	37·73
5	Halifax	77·25	97·93	106·63	114·25	65·28	58·75	14·14
6	Ottawa	168·61	66·80	71·04	108·16	33·93	42·41	28·63
7	St. John, N.B.	63·30	60·72	152·45	165·37	47·80	60·72	18·08
8	London	48·15	45·32	107·64	141·64	48·15	62·32	36·82
9	Winnipeg	183·51	74·46	85·10	103·72	34·57	45·21	34·57
10	Kingston	44·02	138·36	94·33	138·36	40·88	69·18	44·02
11	Victoria, B.C.	73·61	21·47	144·17	110·42	39·87	88·95	52·14
12	Brantford	121·54	22·09	71·82	116·02	44·19	55·24	49·72
13	Charlottetown	104·65	81·89	139·53	139·53	23·25	52·32	29·06
14	Hull	14·74	430·67	67·84	50·14	20·64	8·84	20·64
15	Guelph	67·90	80·24	148·14	55·55	24·69	49·38	37·03
16	St. Thomas	64·28	7·14	107·14	121·42	28·57	57·14	78·57
17	Windsor, Ont.	51·94	45·45	142·85	116·88	77·92	77·92	25·97
18	Sherbrooke	110·41	97·79	75·70	88·32	44·16	41·00	44·16
19	Belleville	126·98	23·80	119·04	158·73	23·80	39·68	39·68
20	Peterborough	55·21	55·21	184·04	73·61	61·34	55·21	73·61
21	Stratford	41·23	20·61	61·85	92·78	20·61	72·16	20·61
22	Chatham, Ont.	48·00	64·00	88·00	152·00	64·00	32·00	16·00
23	Brockville	56·07	9·34	112·14	121·49	28·03	65·42	18·69
24	Woodstock, Ont.	53·33	13·33	146·66	120·00	40·00	80·00	13·33
25	Three Rivers	92·19	10·63	46·09	81·56	42·55	31·91	17·73
26	Galt	46·11	9·25	148·14	92·59	46·11	120·37	9·25
27	St. Hyacinthe	61·85	221·64	82·47	113·40	67·01	36·08	15·46
28	Sorel	278·35	144·32	41·23	46·39	10·30	72·16	20·61
29	Fredericton	40·65	8·13	113·82	121·95	16·26	81·30	32·52
30	St. John's, P.Q.	103·44	215·51	129·31	17·24	60·34	43·10	17·24

TABLEAU VIII.—ETAT COMPARATIF DE LA MORTALITÉ DUE À 15 CAUSES PRINCIPALES DE DÉCÈS, PAR 1,000 DÉCÈS.								
Epilepsy and Convulsions.	Diphtheria.	Throat Affections.	Diseases of the Urinary Organs.	Paralysis.		Typhus, Enteric or Typhoid and Continued Fevers.	Catarrhal Affections.	
Epilepsie et convulsions.	Diphthérie.	Affections de la gorge.	Maladies des voies urinaires.	Paralysie.	Cancer.	Typhus, fièvres typhoïdes et fièvres continues.	Affections catharrales.	
24·46	10·83	15·10	18·38	15·59	16·25	12·14	5·25	1
44·87	62·54	25·08	28·97	18·02	21·90	41·34	2·47	2
18·11	154·58	7·71	4·24	23·13	8·48	7·32	9·25	3
33·96	12·57	11·32	33·96	31·44	38·99	12·57	15·09	4
79·43	79·43	25·20	29·02	13·05	26·11	8·70	5·44	5
15·90	28·63	11·66	12·72	23·32	18·02	9·54	3·18	6
59·43	23·25	45·21	15·50	29·71	9·04	12·91	7·75	7
45·32	28·32	16·99	50·99	45·32	25·49	22·66	16·99	8
29·25	15·95	10·63	50·53	7·97	21·27	50·53	13·29	9
40·88	34·59	12·57	28·30	31·44	28·30	34·59	6·28	10
42·94	3·06	6·13	24·53	24·53	33·74	39·87	.....	11
55·24	11·04	27·62	33·14	22·09	38·67	44·19	5·52	12
34·88	.....	29·06	40·69	23·25	17·44	40·69	40·69	13
5·89	82·59	29·49	5·89	26·54	5·89	5·89	2·94	14
24·69	234·56	.....	30·87	24·69	24·69	12·34	.....	15
42·85	.....	28·57	.....	64·28	35·71	21·42	14·28	16
45·45	32·46	12·98	32·46	25·97	45·45	25·97	.....	17
15·77	97·79	22·08	9·46	15·77	15·77	18·92	12·61	18
7·93	.....	23·80	31·74	71·42	39·68	15·87	.....	19
12·26	55·21	18·40	42·94	6·13	6·13	30·67	6·13	20
61·85	154·63	.....	30·92	10·30	41·23	10·30	20·61	21
56·00	8·00	24·00	48·00	40·00	32·00	40·00	40·00	22
74·76	.....	9·34	37·38	37·38	56·07	28·03	.....	23
66·66	.....	.....	26·66	26·66	.....	53·33	13·33	24
39·00	24·82	14·18	3·54	28·36	10·63	17·73	78·01	25
27·77	9·25	27·77	64·81	27·77	55·55	18·51	18·51	26
10·30	61·85	.....	25·77	20·61	25·77	10·30	20·61	27
20·61	.....	41·23	5·15	46·39	15·46	5·15	5·15	28
24·39	16·26	24·39	16·26	73·17	40·65	.....	121·95	29
17·24	.....	25·86	.....	25·86	8·62	25·86	51·72	30

TABLE IX.

LIST OF ACCIDENTS WITH RATIOS TO 1,000 DEATHS AND
1,000 OF POPULATION.

TABLEAU IX.

LISTE DES ACCIDENTS AVEC PROPORTIONS PAR 1,000 DÉCÈS ET
PAR 1,000 DE LA POPULATION.

TABLE IX—DEATHS CAUSED BY ACCIDENTS.

LIST OF ACCIDENTS WITH RATIOS TO 1,000 DEATHS AND 1,000 OF POPULATION.		Montreal.		Toronto.		Quebec.		Hamilton.	
LISTE DES ACCIDENTS AVEC PROPORTIONS PAR 1,000 DÉCÈS ET PAR 1,000 DE LA POPULATION.		Males— Hommes.	Females— Femmes.	Males— Hommes.	Females— Femmes.	Males— Hommes.	Females— Femmes.	Males— Hommes.	Females— Femmes.
1	Fracture.....	Fracture.....	1				1		
2	“ of femur.....	“ du fémur.....		1					
3	“ of spine.....	“ de l'épine dorsale.....	2			2			
4	“ of foot.....	“ du pied.....	1						
5	“ of skull.....	“ du crâne.....	3	1	3				
6	“ of neck.....	“ du cou.....				1			
7	“ of hip joint.....	“ de l'os de la hanche.....				1			
8	Rupture of stomach.....	Rupture de l'estomac.....				1			
9	Concussion of brain.....	Ebranlement du cerveau.....			1			1	
10	Compression of brain.....	Compression “.....			1				
11	Acc. shot.....	Tués d'un coup de feu.....	2		2			1	
12	Shot by a policeman.....	Tiré par un officier de police.....							
13	Chirurgical operation.....	Opération chirurgicale.....	1						
14	Traumatism of foot.....	Traumatisme du pied.....	1						
15	Accident by sewing machine (tetanos).....	Accet. causé par machine à coudre (tétanos).....							
16	Exhaustion after operation.....	Epuisement à la suite d'une opération.....			2	2			
17	Acc. sword-wound.....	Accet. causé par une blessure d'épée.....							
18	Injury from burn.....	Brûlures.....	5	5	2	6		3	1
19	Acc. scalded.....	“.....			1		1	1	
20	Burned by upsetting of lamp.....	Brûlé par une lampe renversée.....				2			
21	Acc. poisoned.....	Empoisonnements accidentels.....			1	1		1	
22	Poisoned by carbolic acid.....	Empoisonné avec de l'acide carbolique.....	2						
23	“ spirits.....	Empoisonné avec l'alcool.....							
24	“ rough on rats.....	“ de la mort-aux-rats.....			1				
25	“ eating canned lobsters.....	Empoisonné avec du homard en boîte.....							
26	Poisoned by croton oil.....	Empoisonné avec de l'huile de croton.....							
27	Acute alcoholic poisoning.....	Empoisonnement violent par l'alcool.....							
28	Overdose of sleeping draught.....	Dose trop forte d'un narcotique.....			1				
29	Overdose of laudanum.....	Dose trop forte de laudanum.....			1				
30	“ opium.....	Dose trop forte d'opium.....			1				
31	“ medicine.....	“ de médicaments.....							1
32	Drugged.....	Drogué.....			1				
33	Parental drugging.....	“.....				1			
34	Drowning.....	Noyades.....	12	1	19	2	4		2
35	Asphyxia.....	Asphyxie.....	37	15	2	6	1		5
36	Acc. suffocation.....	Suffocation.....	2			1			2
37	Asphyxia from chloroform.....	Asphyxié par le chloroforme.....							
38	Choked while eating.....	Étouffés en mangeant.....	1						
39	Smothered by earth in a drain.....	Suffoqué par l'éboulement d'un égout.....			1				

TABLEAU IX.—DÉCÈS CAUSÉS PAR DES ACCIDENTS.

Halifax.	Octawa.	St. John, N. B.	London.	Winnipeg.	Kingston.	Victoria, B. C.	Brautford.	Charlottetown.	Hull.	Guelph.
Males— Hommes. Females— Femmes.	Males— Hommes. Females— Femmes.	Males— Hommes. Females— Femmes.	Males— Hommes. Females— Femmes.	Males— Hommes. Females— Femmes.	Males— Hommes. Females— Femmes.	Males— Hommes. Females— Femmes.	Males— Hommes. Females— Femmes.	Males— Hommes. Females— Femmes.	Males— Hommes. Females— Femmes.	Males— Hommes. Females— Femmes.
		1				1				
	1		1							
2	2					2	1			
1	1	1			1	1				
1				1	3					
1	1	1		1		1				
1										
	1									
		1								
			1							
				1						
7	1	2	5	5	2	9	1	1	3	
4	1	3			3	4				
					1					

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TABLE IX.—DEATHS CAUSED BY ACCIDENTS—*Continued.*

LIST OF ACCIDENTS WITH RATIOS TO 1,000 DEATHS AND 1,000 OF POPULATION.		Montreal.		Toronto.		Quebec.		Hamilton.	
LISTE DES ACCIDENTS AVEC PROPORTIONS PAR 1,000 DÉCÈS ET PAR 1,000 DE LA POPULATION.		Males— Hommes.	Females— Femmes.	Males— Hommes.	Females— Femmes.	Males— Hommes.	Females— Femmes.	Males— Hommes.	Females— Femmes.
40 Strangulation	Strangulation								1
41 Railway accidents	Accidents de chemins de fer	8		8		1		2	
42 Acc. killed by street car...	“ “ tramway			2					
43 Crushed by a tramcar	“ “								
44 Effects of a fall	Suites d'une chute	6	3	1	1			1	1
45 Fall down stairs	Tué en tombant d'un esca-								
	lier		1						
46 Acc. fall from building...	Tué en tombant d'une bâ-			1					
	tisse								
47 “ “ bridge	Tué en tombant d'un pont..								
48 Acc. fell out of window...	“ “ d'une fenêtre								
49 Injuries sustained	Coups reçus	1						1	
50 Injury from fall	Blessures causées par une								
	chute								
51 “ to spine	Blessures à l'épine dorsale..			1					
52 Sunstroke	Insolation	1		1					
53 Frozen	Gelé	1							
54 Perforation of a tube by a	Perforation d'un tube par						1		
55 fish bone	une arête								
56 Accident by balance wheel.	Tué par une roue de rencont.								
57 “ steamboat engine.	“ la machine d'un								
	bateau à vapeur			1					
58 Killed by explosion of gas..	Tué par l'arbre moteur d'un								
	ascenseur								
	Tué par une explosion de								
59 “ on steamboat	gaz								
60 “ by his bull	Tué par un bateau à vapeur.								
61 Acc. crushed	“ un taureau								
62 Exposure and violence	Ecrasé accidentellement								
63 Killed by eating coal ashes.	Maltraitement			1					
	Absorption de cendre de								
64 “ accidentally	houille								
65 Umbilical Hemorrhage	Tués accidentellement	17	1	2		16	4	6	
66 Hemorrhage from accident.	Hémorrhagie ombilicale	5	2						
	causée par un								
67 Killed by a horse	accident								
68 Kicked “	Tué par un cheval	1		2					
69 Run over by patrol wagon..	“ “			1	1				
	Ecrasé par une voiture de								
70 Killed by a runaway team..	patrouille								
	Tué par des chevaux ayant								
71 Crushed by a cart	pris le mors aux dents								
72 Injury by carriage	Ecrasé par une charette						1		
73 “ sleigh	Coups reçus par une voiture								
74 Run over by a watering	“ “								
75 cart	Ecrasé par une voiture à			1					
Run over by a waggon	arroser les rues								
	Ecrasé par une voiture à la								
	course	1							
Totals	Totaux	110	31	60	29	26	9	22	6
Ratio per 1,000 deaths....	Proportion par 1,000 décès.	23.14		31.44		13.49		35.22	
“ 1,000 of population	“ 1,000 de la	0.65		0.49		0.55		0.57	
	population								

TABLEAU IX.—DÉCÈS CAUSÉS PAR DES ACCIDENTS— <i>Suite.</i>																					
Halifax.		Ottawa.		St. John, N.B.		London.		Winnipeg.		Kingston.		Victoria, B.C.		Brantford.		Charlottetown.		Hull.		Guelph.	
Males— Hommes.	Females— Femmes.	Males— Hommes.	Females— Femmes.	Males— Hommes.	Females— Femmes.	Males— Hommes.	Females— Femmes.	Males— Hommes.	Females— Femmes.	Males— Hommes.	Females— Femmes.	Males— Hommes.	Females— Femmes.	Males— Hommes.	Females— Femmes.	Males— Hommes.	Females— Femmes.	Males— Hommes.	Females— Femmes.	Males— Hommes.	Females— Femmes.
2	1	2	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
				1	1																
				1	1																
										1											
1																				1	
										1											
										1											
1																					
				1																	
3	1			1								1									
1		1		1		2		1		1						1		6	1		
						1															
		1		1				1				1									
																1					
						1															
						1															
										2											
27	6	18	3	12	8	12	2	12	6	12	...	21	1	2	...	3	..	9	1	1	....
35·90		22·26		25·83		39·66		47·87		37·73		67·48		11·04		17·44		29·49		6·17	
0·73		0·47		0·51		0·43		0·70		0·62		1·30		0·13		0·26		0·88		0·09	

TABLE IX—DEATHS CAUSED BY ACCIDENTS.

LIST OF ACCIDENTS WITH RATIOS TO 1,000 DEATHS AND 1,000 OF POPULATION.			St. Thomas.		Windsor, Ont.		Sherbrooke.		Belleville.	
LISTE DES ACCIDENTS AVEC PROPORTIONS PAR 1,000 DÉCÈS ET PAR 1,000 DE LA POPULATION.			Males— Hommes.	Females— Femmes.	Males— Hommes.	Females— Femmes.	Males— Hommes.	Females— Femmes.	Males— Hommes.	Females— Femmes.
1	Fracture.....	Fracture.....								
2	“ of femur.....	“ du fémur.....								
3	“ of spine.....	“ de l'épine dorsale.....								
4	“ of foot.....	“ du pied.....								
5	“ of skull.....	“ du crâne.....								
6	“ of neck.....	“ du cou.....		1						
7	“ of hip joint.....	“ de l'os de la hanche.....								
8	Rupture of stomach.....	Rupture de l'estomac.....								
9	Concussion of brain.....	Ebranlement du cerveau.....							1	
10	Compression of brain.....	Compression “.....								
11	Acc. shot.....	Tués d'un coup de feu.....								
12	Shot by a policeman.....	Tiré par un officier de police.....								
13	Chirurgical operation.....	Opération chirurgicale.....								
14	Traumatism of foot.....	Traumatisme du pied.....								
15	Accident by sewing machine (tetanos).....	Acc. causé par machine à coudre (tétanos).....								
16	Exhaustion after operation.....	Epuisement à la suite d'une opération.....								
17	Acc. sword-wound.....	Acc. causé par une blessure d'épée.....								
18	Injury from burn.....	Brûlures.....								
19	Acc. scalded.....	“.....								
20	Burned by upsetting of lamp.....	Brûlé par une lampe renversée.....								
21	Acc. poisoned.....	Empoisonnements accidentels.....								
22	Poisoned by carbolic acid.....	Empoisonné avec de l'acide carbolique.....								
23	“ spirits.....	Empoisonné avec l'alcool.....								
24	“ rough on rats.....	“ de la mort-aux-rats.....								
25	“ eating canned lobsters.....	Empoisonné avec du homard en boîte.....								
26	Poisoned by croton oil.....	Empoisonné avec de l'huile de croton.....								
27	Acute alcoholic poisoning.....	Empoisonnement violent par l'alcool.....								
28	Overdose of sleeping draught.....	Dose trop forte d'un narcotique.....								
29	Overdose of laudanum.....	Dose trop forte de laudanum.....								
30	“ opium.....	Dose trop forte d'opium.....								
31	“ medicine.....	“ de médicaments.....								
32	Drugged.....	Drogué.....								
33	Parental drugging.....	“.....								
34	Drowning.....	Noyades.....			2		1	1		
35	Asphyxia.....	Asphyxie.....			2		2	1		
36	Acc. suffocation.....	Suffocation.....								
37	Asphyxia from chloroform.....	Asphyxié par le chloroforme.....	1							
38	Choked while eating.....	Étouffé en mangeant.....								
39	Smothered by earth in a drain.....	Suffoqué par l'éboulement d'un égout.....								

TABLE IX.—DEATHS CAUSED BY ACCIDENTS—*Continued.*

LIST OF ACCIDENTS WITH RATIOS TO 1,000 DEATHS AND 1,000 OF POPULATION.		St. Thomas.		Windsor, Ont.		Sherbrooke.		Belleville.	
LISTE DES ACCIDENTS AVEC PROPORTIONS PAR 1,000 DÉCÈS ET PAR 1,000 DE LA POPULATION.		Males— Hommes.	Females— Femmes.	Males— Hommes.	Females— Femmes.	Males— Hommes.	Females— Femmes.	Males— Hommes.	Females— Femmes.
40 Strangulation	Strangulation								
41 Railway accidents	Accidents de chemins de fer	1						2	
42 Acc. killed by street car....	“ “ tramway								
43 Crushed by a tramcar	“ “								
44 Effects of a fall	Suites d'une chute						1		
45 Fall down stairs	Tué en tombant d'un escalier								
46 Acc. fall from building	Tué en tombant d'une bâtisse								
47 “ “ bridge	Tué en tombant d'un pont	1							
48 Acc. fell out of window	“ “ d'une fenêtre								
49 Injuries sustained	Coups reçus								
50 Injury from fall	Blessures causées par une chute								
51 “ to spine	Blessures à l'épine dorsale								
52 Sunstroke	Insolation								
53 Frozen	Gelé								
54 Perforation of a tube by a fish bone	Perforation d'un tube par une arête								
55 Accident by balance wheel	Tué par une roue-de-rencont.								
56 “ steamboat engine	“ la machine d'un bateau à vapeur								
57 “ elevator shaft	Tué par l'arbre moteur d'un ascenseur								
58 Killed by explosion of gas	Tué par une explosion de gaz					1			
59 “ on steamboat	Tué par un bateau à vapeur								
60 “ by his bull	“ un taureau								
61 Acc. crushed	Ecrasé accidentellement								
62 Exposure and violence	Maltraitement								
63 Killed by eating coal ashes	Absorption de cendre de houille								
64 “ accidentally	Tués accidentellement								
65 Umbilical Hemorrhage	Hémorrhagie ombilicale								
66 Hemorrhage from accident	“ causée par un accident					1			
67 Killed by a horse	Tué par un cheval								
68 Kicked “	“ “								
69 Run over by patrol wagon	Ecrasé par une voiture de patrouille								
70 Killed by a runaway team	Tué par des chevaux ayant pris le mors aux dents								
71 Crushed by a cart	Ecrasé par une charette								
72 Injury by carriage	Coups reçus par une voiture					1			
73 “ sleigh	“ “								
74 Run over by a watering cart	Ecrasé par une voiture à arroser les rues								
75 Run over by a waggon	Ecrasé par une voiture à la course								
Totals	Totaux	3	1	4		6	3	3	
Ratio per 1,000 deaths	Proportion par 1,000 décès	28.57		25.97		28.39		23.80	
“ 1,000 of population	“ 1,000 de la population	0.38		0.38		0.89		0.30	

INDEX

TO THE REPORT FOR THE YEAR 1891.

INDEX

DU RAPPORT POUR L'ANNÉE 1891.

INDEX.

INTRODUCTION.....	Page vi.
-------------------	----------

Table of deaths for the year 1891, showing the *cause of death, Sex, Age and Civil Condition* of deceased, with a separate column for the *Still-born* :—

For the City of Montreal	Pages	2 to	5
“ Toronto.....	“	6 to	9
“ Quebec.....	“	10 to	13
“ Hamilton.....	“	14 to	17
“ Halifax.....	“	18 to	21
“ Ottawa.....	“	22 to	25
“ St. John, N.B.	“	26 to	29
“ London.....	“	30 to	33
“ Winnipeg.....	“	34 to	37
“ Kingston.....	“	38 to	41
“ Victoria, B.C.....	“	42 to	45
“ Brantford.....	“	46 to	49
“ Charlottetown.....	“	50 to	53
“ Hull.....	“	54 to	57
“ Guelph.....	“	58 to	61
“ St. Thomas.....	“	62 to	65
For the Town of Windsor.....	“	66 to	69
For the City of Sherbrooke.....	“	70 to	73
“ Belleville.....	“	74 to	77
For the Town of Peterborough.....	“	78 to	81
For the City of Stratford.....	“	82 to	85
For the Town of Chatham, Ont.....	“	86 to	89
For the City of Brockville.....	“	90 to	93
For the Town of Woodstock, Ont.....	“	94 to	97
For the City of Three Rivers.....	“	98 to	101
For the Town of Galt.....	“	102 to	105
For the City of St. Hyacinthe.....	“	106 to	109
For the Town of Sorel.....	“	110 to	113
For the City of Fredericton.....	“	114 to	117
For the Town of St. Johns, P.Q.....	“	118 to	121

Table of deaths giving *diseases in the order of Fatality, Religions, Nationalities and Occupations* :—

For the City of Montreal.....	Pages	124 to	127
“ Toronto.....	“	128 to	131
“ Quebec.....	“	132 to	135
“ Hamilton.....	“	136 to	139
“ Halifax.....	“	140 to	143
“ Ottawa.....	“	144 to	147
“ St. John, N.B.	“	148 and	149
“ London.....	“	150 “	151
“ Winnipeg.....	“	152 “	153
“ Kingston.....	“	154 “	155
“ Victoria, B.C.....	“	156 “	157
“ Brantford.....	“	158 “	159
“ Charlottetown.....	“	160 “	161
“ Hull.....	“	162 “	163
“ Guelph.....	“	164 “	165
“ St. Thomas.....	“	166 “	167
For the Town of Windsor, Ont.....	“	168 “	169
For the City of Sherbrooke.....	“	170 “	171

INDEX.

INTRODUCTION.....Page vii.

Tableau de la mortalité pour l'année 1891, avec indication des *causes de décès*, du *sex*, de l'*âge* et de l'*état civil* des décédés, avec colonne à part donnant le chiffre des *mort-nés* :—

Pour la Cité de Montréal.....	Pages	2 à 5
“ de Toronto.....	“	6 à 9
“ de Québec.....	“	10 à 13
“ d'Hamilton.....	“	14 à 17
“ d'Halifax.....	“	18 à 21
“ d'Ottawa.....	“	22 à 25
“ de St. John, N.B.....	“	26 à 29
“ de London.....	“	30 à 33
“ de Winnipeg.....	“	34 à 37
“ de Kingston.....	“	38 à 41
“ de Victoria, C.B.....	“	42 à 45
“ de Brantford.....	“	46 à 49
“ de Charlottetown.....	“	50 à 53
“ de Hull.....	“	54 à 57
“ de Guelph.....	“	58 à 61
“ de St. Thomas.....	“	62 à 65
Pour la Ville de Windsor, Ont.....	“	66 à 69
Pour la Cité de Sherbrooke.....	“	70 à 73
“ de Belleville.....	“	74 à 77
Pour la Ville de Peterborough.....	“	78 à 81
Pour la Cité de Stratford.....	“	82 à 85
Pour la Ville de Chatham, Ont.....	“	86 à 89
Pour la Cité de Brockville.....	“	90 à 93
Pour la Ville de Woodstock, Ont.....	“	94 à 97
Pour la Cité de Trois-Rivières.....	“	98 à 101
Pour la Ville de Galt.....	“	102 à 105
Pour la Cité de St. Hyacinthe.....	“	106 à 109
Pour la Ville de Sorel.....	“	110 à 113
Pour la Cité de Fredericton.....	“	114 à 117
Pour la Ville de St. Jean, P.-Q.....	“	118 à 121

Tableau de décès par *maladies dans l'ordre de la fatalité, religions, nationalités, et occupations* :—

Pour la Cité de Montréal.....	Pages	124 à 127
“ de Toronto.....	“	128 à 131
“ de Québec.....	“	132 à 135
“ d'Hamilton.....	“	136 à 139
“ d'Halifax.....	“	140 à 143
“ d'Ottawa.....	“	144 à 147
“ de St. John, N.B.....	“	148 et 149
“ de London.....	“	150 et 151
“ de Winnipeg.....	“	152 et 153
“ de Kingston.....	“	154 et 155
“ de Victoria, C.B.....	“	156 et 157
“ de Brantford.....	“	158 et 159
“ de Charlottetown.....	“	160 et 161
“ de Hull.....	“	162 et 163
“ de Guelph.....	“	164 et 165
“ de St. Thomas.....	“	166 et 167
Pour la Ville de Windsor, Ont.....	“	168 et 169
Pour la Cité de Sherbrooke.....	“	170 et 171

For the City of Belleville.....	Pages 172 and 173
For the Town of Peterborough.....	" 174 " 175
For the City of Stratford.....	" 176 " 177
For the Town of Chatham, Ont.....	" 178 " 179
For the City of Brockville.....	" 180 " 181
For the Town of Woodstock, Ont.....	" 182 " 183
For the City of Three Rivers.....	" 184 " 185
For the Town of Galt.....	" 186 " 187
For the City of St. Hyacinthe.....	" 188 " 189
For the Town of Sorel.....	" 190 " 191
For the City of Fredericton.....	" 192 " 193
For the Town of St. Johns, P.Q.....	" 194 " 195
Table of deaths of <i>Illegitimate Children</i>	" 198 " 199
Ratios of mortality by <i>Ages</i>	" 202 " 203
" " <i>Occupations</i>	" 206 " 207
" " <i>Months</i>	" 210 " 211
" " <i>from fifteen principal causes of death</i>	" 214 to 219
Liste of <i>Accidents with ratios</i>	" 222 " 229

Pour la Cité de Belleville.....	“	172 et 173
Pour la Ville de Peterborough.....	“	174 et 175
Pour la Cité de Stratford.....	“	176 et 177
Pour la Ville de Chatham, Ont.....	“	178 et 179
Pour la Cité de Brockville.....	“	180 et 181
Pour la Ville de Woodstock, Ont.....	“	182 et 183
Pour la Cité de Trois-Rivières.....	“	184 et 185
Pour la Ville de Galt.....	“	186 et 187
Pour la Cité de St. Hyacinthe.....	“	188 et 189
Pour la Ville de Sorel.....	“	190 et 191
Pour la Cité de Frédérickton.....	“	192 et 193
Pour la Ville de St. Jean, P.Q.....	“	194 et 195
Tableau des décès d'enfants illégitimes.....	“	198 et 199
Proportions de la mortalité par âges.....	“	202 et 203
“ “ occupations.....	“	206 et 207
“ “ mois.....	“	210 et 211
“ “ due à quinze causes principales de décès.....	“	214 à 219
Liste des accidents, avec proportions.....	“	222 à 229

APPENDIX

TO THE REPORT OF THE MINISTER OF AGRICULTURE FOR THE YEAR 1891.

CRIMINAL STATISTICS

FOR THE

YEAR ENDED 30TH SEPTEMBER 1891.

PRINTED BY ORDER OF PARLIAMENT.

ANNEXE

AU RAPPORT DU MINISTRE DE L'AGRICULTURE POUR L'ANNÉE 1891.

STATISTIQUE CRIMINELLE

POUR

L'ANNÉE EXPIRÉE LE 30 SEPTEMBRE 1891.

IMPRIMÉ PAR ORDRE DU PARLEMENT.



OTTAWA

PRINTED BY S. E. DAWSON, PRINTER TO THE QUEEN'S MOST
EXCELLENT MAJESTY

1892.

TABLE OF SUBJECTS.

	Introduction.....	Page IV.
TABLE	I.—Indictable offences.....	“ 2 and following to 133
	CLASS I.—Offences against the person.	“ 2 “ 57
	CLASS II.—Offences against property with violence.....	“ 58 “ 73
	CLASS III.—Offences against property without violence.....	“ 70 “ 109
	CLASS IV.—Malicious offences against the property.....	“ 106 “ 113
	CLASS V.—Forgery and offences against the currency.....	“ 110 “ 117
	CLASS VI.—Other offences not included in the foregoing.....	“ 114 “ 133
TABLE	II.—Summary by classes and provinces, with totals of each province and of Canada.	“ 136 “ 143
TABLE	III.—Summary convictions.....	“ 146 “ 197
TABLE	IV.—Showing the number of convictions and the number of inhabitants to each con- viction for the years 1881 and 1891...	“ 200 and 201
TABLE	V.—Summary convictions and cases subject to trial by jury.....	“ 204 and following to 209
TABLE	VI.—Number of summary convictions with ratio for Cities and Towns....	“ 212
TABLE	VII.—Pardons and commutations.....	“ 214 “ 222
	Index—Indictable offences.....	“ 224
	Index of Districts—Summary convic- tions.....	“ 226 and 227

TABLE DES MATIÈRES.

	Introduction.....	Page V.		
TABLEAU	I.—Délits sujets à poursuite.....	“	2 et suivantes à 133	
	CLASSE I.—Outrages contre la personne.....	“	2	57
	CLASSE II.—Délits avec violence contre la propriété.....	“	58	73
	CLASSE III.—Délits sans violence contre la propriété.....	“	70	109
	CLASSE IV.—Offenses malicieuses contre la propriété.....	“	106	113
	CLASSE V.—Faux et délits par rapport à la monnaie.....	“	110	117
	CLASSE VI.—Autres délits non compris dans les classes précédentes.....	“	114	133
TABLEAU	II.—Récapitulation par classes et par provinces, avec totaux de chaque province et du Canada.....	“	136	143
TABLEAU	III.—Condamnations sommaires.....	“	146	197
TABLEAU	IV.—Indiquant le nombre de condamnations et le nombre d'habitants pour chaque condamnation pour les années 1881 et 1891.....	“	200 et 201	
TABLEAU	V.—Condamnations sommaires et causes de la compétence d'un juré.....	“	204 et suivantes à 209	
TABLEAU	VI.—Nombre de condamnations sommaires avec proportions pour les villes.....	“	212	
TABLEAU	VII.—Pardons et commutations.....	“	214	223
	Index—Délits sujets à poursuite.....	“	225	
	Index des districts—Condamnations sommaires.....	“	226 et 227	

REPORT OF CRIMINAL STATISTICS

FOR THE YEAR ENDED 30TH SEPTEMBER, 1891.

These Statistics are collected and compiled under authority of the Act respecting Criminal Statistics, Revised Statutes of Canada, Chapter 60.

The report is made up of "Indictable Offences" and "Summary Convictions," in the "Indictable Offences" are included all cases tried by competent magistrates with the consent of the accused (whether acquitted or convicted), in accordance with the Acts respecting "Speedy Trials," "Summary Trials by Consent" and "Juvenile Offenders," Chapters 176, 177 and 178, Revised Statutes of Canada.

The first part of the report is divided into six classes of offences, as follows:—1st, offences against the person; 2nd, offences against property with violence; 3rd, offences against property without violence; 4th, malicious offences against property; 5th, forgery and other offences against currency; 6th, other offences not included in the foregoing classes.

The returns received by the Department show that 5,988 persons have been charged with indictable offences in the several criminal courts of Canada during the year 1891, an increase of 169, as compared with the same returns for 1890. Of the above number of persons accused, 1,952 have been discharged in 1891, against 1,847 in 1890; this leaves the number of convictions in the Criminal Courts of Canada at 3,964, for the year 1891, or 8·20 per 10,000 inhabitants, against 3,934, for the year 1890, or 8·24 per 10,000 inhabitants, divided by provinces as follows:—

INDICTABLE OFFENCES.

PROVINCES.	1890.		1891.	
	No. of Convictions.	Ratio per 10,000 inhabitants.	No. of convictions.	Ratio per 10,000 inhabitants.
British Columbia	183	19·75	145	14·85
The Territories.....	92	14·82	75	11·22
Ontario.....	2,123	10·14	2,046	9·67
Quebec.....	1,220	8·28	1,356	9·11
Manitoba.....	91	6·38	93	6·09
Nova Scotia.....	126	2·80	124	2·75
New Brunswick.....	79	2·45	96	2·99
Prince Edward Island.....	20	1·83	29	2·65

RAPPORT DE LA STATISTIQUE CRIMINELLE

POUR L'ANNÉE EXPIRÉE LE 30 SEPTEMBRE 1891.

La matière de ce rapport a été recueillie et compilée en vertu de "l'Acte de la Statistique Criminelle," (Statuts Révisés du Canada, chapitre 60).

Le rapport ci-joint comprend les "délicts sujets à poursuite" ou causes de la compétence d'un juré, et les "condamnations sommaires;" dans les offenses sujettes à poursuite se trouvent compris tous les cas expédiés sommairement par des magistrats compétents, avec le consentement des personnes accusées, en conformité des actes concernant les "procès expéditifs," les "procès sommaires" et les "jeunes délinquants," (chapitres 176, 177 et 178, Statuts Révisés du Canada.)

La première partie de ce rapport (délicts sujets à poursuite) est divisée en six classes:—1, outrages contre la personne; 2, délicts avec violence contre la propriété; 3, délicts sans violence contre la propriété; 4, offenses malicieuses contre la propriété; 5, faux et délicts par rapport à la monnaie; 6, autres délicts non compris dans les classes précédentes.

D'après les rapports reçus par le département, le nombre de personnes mises en accusation dans les différentes cours criminelles du Canada, pour "délicts sujets à poursuite" ou causes de la compétence d'un juré, était de 5,988 en 1891 contre 5,819 en 1890, soit une augmentation de 169 sur l'année 1890.

Du nombre de personnes accusées, plus haut mentionné, 1,952 ont été acquittées en 1891, et 1,847 en 1890; déduction faite des cas d'acquittement, le nombre de condamnations dans les cours criminelles du Canada était de 3,964 pour l'année 1891, soit 8.20 pour chaque 10,000 habitants; contre 3,934 pour l'année 1890, soit 8.24 pour chaque 10,000 habitants. Divisées par provinces le nombre de condamnations est comme suit:—

DÉLITS SUJETS À POURSUITE OU DE LA COMPÉTENCE D'UN JURÉ.

PROVINCES.	1890.		1891.	
	Nombre de condam-nations.	Proportion par 10,000 habitants.	Nombre de condam-nations.	Proportion par 10,000 habitants.
Colombie-Britannique.....	183	19.75	145	14.85
Les Territoires.....	92	14.82	75	11.22
Ontario.....	2,123	10.14	2,046	9.67
Québec.....	1,220	8.28	1,356	9.11
Manitoba.....	91	6.38	93	6.09
Nouvelle-Ecosse.....	126	2.80	124	2.75
Nouveau-Brunswick.....	79	2.45	96	2.99
Ile du Prince-Edouard.....	20	1.83	29	2.65

Of the total number of persons convicted of indictable offences in 1891, there were 282 belonging to the feminine sex, or 7.1 per cent of the total convictions, against 320, or 8.1 per cent in 1890.

With regard to ages, the number of persons convicted under 16 years was 615 in 1891, or 15.5 per cent of the total convictions, against 594, or 15.1 per cent in 1890.

The educational status for 1891, is represented as follows :—Unable to read or write, 919, or 21.1 per cent of the total convictions ; elementary, 2,752, or 69.4 per cent ; superior, 77, or 2.0 per cent ; the balance, 216, or 5.5 per cent, is not given.

According to the returns for the year 1891, of the 3,964 persons convicted, 2,088 used liquor moderately, and 1,706, immoderately.

The urban population has furnished 77.7 per cent of the total convictions while the rural districts has contributed in the proportion of 23.3 per cent. There were 3,522 persons convicted for the first time ; 235, for the second time, and 207, for the third time and over.

The 3,964 sentences passed by the several criminal courts for the year 1891, were as follows :—

Sentenced to option of a fine.....	571
“ “ gaol for less than one year.....	1,916
“ “ “ one year and less than two.....	184
“ “ penitentiary for two years and under five....	299
“ “ “ five years and over.....	119
“ “ “ life.....	2
“ “ death.....	7
“ “ reformatories.....	201
Other sentences, such as bound to keep the peace, sentence deferred, &c., &c.....	665

Indictable offences distributed by Classes.

The number of persons convicted in class I, “Offences against the person,” including the higher crimes, such as murder, manslaughter, assault, &c., was 907 in 1891, an increase of 26 as compared with the same class for the year 1890.

In class II, “Offences against property with violence,” including burglary, house-breaking, &c., there were 283 convictions in 1891, against 276 in 1890.

In class III, “Offences against property without violence,” which includes larceny, horse, cattle and sheep stealing, embezzlement, fraud and false pretenses, &c., there were 2,498 persons convicted in 1891, an increase of 66 as compared with the same class of offences in 1890.

Class IV, “Malicious offences against property,” shows a decrease of 9 in 1891, as compared with the same class in 1890 ; the number of convictions in 1890, being 50, against 41 in 1891.

There was also a decrease in class V, “Forgery and offences against the currency ;” 36 persons having been convicted of offences belonging to this class in 1891, against 46 in 1890.

The number of convictions in class VI, “Other offences not included in the foregoing classes,” also shows a decrease ; the figures in this class being 190 convictions in 1891, against 240 in 1890.

Des 3,964 personnes condamnées en 1891, 282 ou 7·1 pour cent du total des condamnations appartenait au sexe féminin, tandis qu'en 1890 le nombre de personnes appartenant à ce sexe s'élevait à 320, soit 8·1 pour cent du total des condamnations.

En 1891, 615 ou 15·5 pour cent des personnes condamnées étaient âgées de moins de 16 ans, et en 1890 le nombre de personnes âgées de moins de 16 ans s'élevait à 594 ou 15·1 pour cent du total des condamnations.

L'état d'éducation des personnes condamnées en 1891 est comme suit :—Incapables de lire ou d'écrire, 919, ou 21·1 pour cent ; instruction élémentaire, 2,752 ou 69·4 pour cent ; instruction supérieure, 77 ou 2·0 pour cent ; le nombre de condamnés dont l'état d'éducation n'est pas donné, s'éleva à 216 ou 5·5 pour cent.

D'après les rapports reçus pour l'année 1891, sur les 3,964 personnes qui ont subi condamnation, 2,088 faisant un usage modéré de boissons enivrantes, et 1,706, un usage immodéré.

La population des villes a contribué dans la proportion de 77·7 pour cent au total des condamnations, tandis que la population rurale y a contribué dans la proportion 22·3 pour cent. 3,522 personnes ont été condamnées pour la première fois ; 235 pour la deuxième, et 207 ont été condamnées trois fois et plus.

Voici un état détaillé des 3,964 sentences prononcées par les différentes cours criminelles durant l'année 1891 :—

Condamnés à l'option entre la prison ou l'amende.....	571
" à la prison pour moins d'un an.....	1,916
" " un an et moins de deux.....	184
" an pénitencier pour deux ans et moins de cinq..	299
" " cinq ans et au-dessus.....	119
" " la vie.....	2
" à mort.....	7
" aux écoles de réforme.....	201
Autres sentences, telles que "tenus de garder la paix,"	
"sentence remise," etc., etc.....	665

Délits sujets à poursuite distribués par classes.

Le nombre de condamnations appartenant à la classe I, "outrages contre la personne," tels que meurtres, homicide non prémédité, et voies de fait grave, etc., était de 907 en 1891, soit une augmentation de 26 sur la même classe pour l'année précédente.

Dans la classe II, "offenses contre la propriété avec violence," comprenant les vols avec effraction, les bris de maison ou de magasin, etc., il y avait 283 condamnations en 1891 contre 276 en 1890.

Dans la classe III, "offenses contre la propriété sans violence," comprenant les cas de larcin, les vols de chevaux, bétail ou moutons, les cas de détournement, de fraude, faux prétextes, etc., il y a eu 2,498 condamnations en 1891, soit une augmentation de 66 sur la même classe d'offenses, pour l'année 1890.

Le nombre de personnes condamnées dans la classe IV, "offenses malicieuses contre la propriété," s'élevait à 50 en 1891, soit une diminution de 9 comparée avec la même classe de offenses pour l'année 1890.

Il y a aussi eu une diminution dans la classe V, "faux et délits par rapport à la monnaie," 36 personnes ayant été condamnées en 1891 pour offenses appartenant à cette classe, contre 46 en 1890.

A comparative statement between the years 1881 and 1891, showing the number of convictions and the number of inhabitants to each conviction returned, is given in this report, by groups of offences. According to this statement, the total number of convictions (Indictable and Summary) for each province and for Canada, is as follows :—

PROVINCES.	Number of convictions.		Number of inhabitants to each conviction.	
	1881.	1891.	1881.	1891.
Ontario.....	17,110	19,389	112	109
Quebec.....	6,430	10,743	211	138
Nova Scotia ..	1,590	1,478	277	305
New Brunswick.....	1,859	2,540	772	126
Prince Edward Island.....	527	555	206	196
Manitoba	1,054	997	62	153
British Columbia	451	1,360	109	71
The Territories ..	204	353	276	280
Canada	29,225	37,415	148	129

The number of summary convictions by justices of the peace out of sessions, throughout the Dominion, including drunkenness, assault and battery, vagrancy, breaches of municipal by-laws, &c., has decreased from 34,606 in 1890, to 33,451 in 1891. The province which shows the greater decrease in these minor offences being Ontario, which had 19,178 convictions in 1890, against 17,343 in 1891, a decrease of 1,835. Quebec has increased the number of its summary convictions by 306; the figures in 1890 being 9,081 as against 9,387 in 1891.

British Columbia shows a still greater increase than Quebec, the figures of 1890 being 898, against 1,215 in 1891. The number of summary convictions in the other provinces taken together remains about the same for the years 1890 and 1891.

The number of cases tried by jury was 932 in 1891, against 1,010 in 1890, a decrease of 78 as compared with 1890.

The number of cases in which the prerogative of pardon has been exercised in favour of prisoners, was 120 in 1891, against 157 in 1890.

This report of Criminal Statistic could be published much earlier every year, if some of the officers making the returns were willing to address their returns to the Department during the time prescribed by the Act. As will be seen by this report and also by the one for the year previous, no returns at all have been received from the police court of Stratford for the past two years; and in many other instances, a large number of letters had to be written to several officers before their returns were received by the Department. It is true that clause 8 of the Criminal Statistics Act has never yet been put in force by the Department.

Le nombre de condamnations appartenant à la classe VI, "autres délits non compris dans les classes précédentes" était de 190 en 1891, contre 240 en 1890, soit une diminution de 50.

On trouvera dans ce rapport un état comparatif pour les années 1881 et 1891, montrant par groupes de délits le nombre de condamnations et le nombre d'habitants pour chaque condamnation rapportée. D'après cet état, le nombre total des condamnations (de la compétence d'un juré et sommaires) pour chaque province et pour le Canada, est tel que suit :—

PROVINCES.	Nombre de condamnations.		Nombre d'habitants pour chaque condamnation.	
	1881.	1891.	1881.	1891.
Ontario	17,110	19,389	112	109
Québec	6,430	10,743	211	138
Nouvelle-Ecosse	1,590	1,478	277	305
Nouveau-Brunswick	1,859	2,540	172	126
Ile du Prince-Edouard	527	555	202	196
Manitoba	1,054	997	62	153
Colombie-Britannique	451	1,360	109	71
Les Territoires	204	353	276	280
Canada	29,225	37,415	148	129

Le nombre de condamnations sommaires par les juges de paix hors des sessions dans les différentes provinces, comprenant les cas d'ivresse, d'assault et batterie, de vagabondage, d'infraction aux lois municipales, etc., a diminué de 34,606 qu'elles étaient en 1890, à 33,451 en 1891. De toutes les provinces, Ontario est celle qui montre la plus grande diminution dans le nombre de ces petits délits, lesquels s'élevaient à 19,178 en 1890, contre 17,343 en 1891, soit une diminution de 1,835.

La province de Québec a augmenté le nombre de ses condamnations sommaires de 306 ; les chiffres s'élevaient à 9,081 en 1890 et à 9,387 en 1891.

L'augmentation des petits délits est encore plus grande dans la province de la Colombie-Anglaise que dans Québec ; le nombre de condamnations sommaires dans cette province était de 898 en 1890, contre 1,215 en 1891.

Le nombre des condamnations sommaires pour les autres provinces, prises ensemble, reste à peu près le même pour les années 1890 et 1891.

Le nombre de cas entendus devant un juré était de 932 en 1891, contre, 1,010 en 1890, soit une diminution de 78. Le nombre de cas dans lesquels la prérogative du pardon a été exercée durant l'année 1891 était de 120, contre 157 en 1890.

Ce rapport de la Statistique Criminelle pourrait être publié beaucoup plus à bon heure, chaque année, qu'il ne l'a été à venir jusqu'aujourd'hui, s'il y avait moins de négligence et de mauvaise volonté de la part de plusieurs des officiers chargés de recueillir cette statistique, et de la transmettre à ce département dans le délai voulu par l'Acte de la Statistique Criminelle.

Comme on verra par le présent rapport et par celui de l'année précédente, rien n'a été reçu de la cour de police de Stratford, pour les deux dernières années, malgré tous les efforts faits par le département pour obtenir les renseignements voulus. Dans plusieurs autres cas, ce n'est qu'après avoir écrit plusieurs fois aux officiers négligents que leurs rapports nous sont parvenus. Il est vrai que le département n'a pas encore cru mettre en force la clause 8, de l'Acte de la Statistique Criminelle.

TABLE I.

INDICTABLE OFFENCES.

TABLEAU I.

DÉLITS SUJETS A POURSUITE.

TABLE I.		OFFENCES AGAINST THE PERSON.						CLASS I.		
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDICIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Persons charged. — Per- sonnes accusées	Ac- quit- ted. — Ac- quit- tés.	De- tained for Lu- nacy. — Em- pri- son- nés pour cause de folie.	CONVICTIONS. — CONDAMNATIONS.				SENTENCE.		
				Total.	Con- victed 1st. — Con- dam- nés une fois.	Con- victed 2nd. — Con- dam- nés deux fois.	Reite- rated. — Plus de 2 rédi- ves.	COMMITTED TO GAOL — EMPRISONNÉS.		
								With the option of a fine. — Sur option entre la pri- son ou l'a- me'de	No OPTION. — SansOPTION	Un- der one year. — Moins d'un an.	One year and over. — Un an et plus.
MURDER.										
Montreal, Que.....	1	1								
Quebec, Que.....	3	3								
St. Francis, Que.....	2			2	2					
Totals of Quebec.....	6	4		2	2					
Hastings, Ont.....	1			1	1					
Huron, Ont.....	1	1								
Kent, Ont.....	1	1								
Leeds and Grenville, Ont.....	1	1								
Northumberland & Durham, O.....	1	1								
Prescott and Russell, Ont.....	1			1	1					
Welland, Ont.....	1			1	1					
Wellington, Ont.....	1		1							
Totals of Ontario.....	8	4	1	3	3					
Clinton, B.C.....	1			1	1					
New Westminster, B.C.....	2	1		1	1					
Totals of British Columbia.....	3	1		2	2					
Totals of Canada.....	17	9	1	7	7					
ATTEMPT TO MURDER.										
Montreal, Que.....	1			1	1				1	
Northumberland & Durham, O.....	1			1	1					
Totals of Canada.....	2			2	2				1	
MANSLAUGHTER.										
Digby, N.S.....	1			1	1			*1		
Inverness, N.S.....	1			1	1					
Totals of Nova Scotia.....	2			2	2			1		
Montreal, Que.....	2	1		1	1					
Kent, Ont.....	1			1	1					
Middlesex, Ont.....	2	1		1	1					
Ontario, Ont.....	1	1								
Wentworth, Ont.....	1	1								
York, Ont.....	4	3		1	1					
Totals of Ontario.....	9	6		3	3					

* Accidental poisoning — Empoisonnement involontaire.

TABLEAU I.											OUTRAGES CONTRE LA PERSONNE.						CLASSE I.		
SENTENCE.						OCCUPATIONS.						CIVIL CONDITIONS.							
PENITENTIARY.			D'th.	Com- mit- ted to Refor- matories.	Other Senten- ces.	Agricultural.	Com- mer- cial.	Do- mestic	In- dus- trial.	Pro- fes- sional	La- borers	Mar- ried.	Wi- dowed	Single					
PÉNITENCIER.																			
Two years and un- der five.	Five years and over.	Life.	—	—	—	—	—	—	—	—	—	—	—	—					
Deux ans et m'ns de cinq.	Cinq ans et plus.	A vie	De mort	En- voyés à la prison de Réfor- me.	Autres Senten- ces.	Agri- cul- teurs.	Com- mer- çants.	Servi- teurs.	In- dus- triels.	Pro- fes- sions libé- rales.	Jour- na- liers.	Mariés.	En- ven- vage.	Céli- bair- es.					
MEURTRE.																			
			2			1					1			2					
			2			1					1			2					
			1								1	1							
			1								1			1					
			1						1			1							
			3						1		2	2		1					
			1									1							
			1																
			2									1							
			7			1			1		3	3		3					
TENTATIVE DE MEURTRE.																			
									1					1					
		1							1					1					
		1							2					2					
HOMICIDE NON PRÉMÉDITÉ.																			
1									1	1		1		1					
1									1	1		1		1					
	1							1						1					
1	1					1			1			1		1					
					1a.			1						1					
1	1				1a.	1		1	1			1		2					

TABLE I.			OFFENCES AGAINST THE PERSON.										CLASS I.				
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.			EDUCATIONAL STATUS. — INSTRUCTION.			AGES.										USE OF LIQUORS. — USAGE DE LIQUEURS	
			Un- able to read or write. — Inca- pable de lire ou d'é- crire.	Ele- men- tary. — Elé- men- taire.	Super- rior. — Supé- rieure	Under 16 years. — Moins de 16 ans.	16 years and under 21. — 16 ans et moins de 21.	21 years and under 40. — 21 ans et moins de 40.	40 years and over. — 40 ans et plus.	Not given. — Non- donné.	Mo- de- rate — Mo- déré	Im- mo- de- rate — Im- mo- déré					
						M.	F.	M.	F.	M.			F.	M.	F.	M.	F.
						H.	F.	H.	F.	H.			F.	H.	F.	H.	F.
MURDER.																	
Montréal, Qué																	
Québec, Qué.																	
St. François, Qué.			2								2			2			
Totaux de Québec.			2								2			2			
Hastings, Ont			1						1					1			
Huron, Ont.																	
Kent, Ont.																	
Leeds et Grenville, Ont.																	
Northumberl'd et Durham, O.																	
Prescott et Russell, Ont.			1					1					1				
Welland, Ont.			1					1					1				
Wellington, Ont.																	
Totaux d'Ontario			3					2		1			2	1			
Clinton, Col.-B										1							
New-Westminster, Col.-B.											1						
Totaux de la Col.-Britann.										1							
Totaux du Canada.			5					2		2		3	2	3			
ATTEMPT TO MURDER.																	
Montréal, Qué			1					1						1			
Northumberl'd et Durham, O.			1					1					1				
Totaux du Canada.			2					2					1	1			
MANSLAUGHTER.																	
Digby, N.-E.				1				1					1				
Inverness, N.-E.			1					1					1				
Totaux de la N.-Ecosse.			1	1				2					2				
Montréal, Qué.			1					1					1				
Kent, Ont.			1			1							1				
Middlesex, Ont.			1					1					1				
Ontario, Ont.																	
Wentworth, Ont.																	
York, Ont.			1			1							1				
Totaux d'Ontario.			3			2		1					3				

TABLEAU I.														OUTRAGES CONTRE LA PERSONNE.														CLASSE I.			
BIRTH PLACES. LIEUX DE NAISSANCE.														RELIGIONS.														RESI- DENCE.			
BRITISH ISLES. — ILES BRITANNIQUES.			Ca- nada.	United States — Etats- Unis.	Other Fo- reign Coun- tries. — Aut- res pays étran- gers.	Other Bri- tish Pos- ses- sions. — Autr's posses- sions Bri- tanni- ques.	Bap- tists. — Bap- tistes.	R. Ca- tho- lics. — Ca- tholi- ques.	Ch. of Eng- land. — Eglise d'An- gle- terre.	Me- tho- dist — Mé- tho- dis- tes.	Pres- byte- rians. — Pres- byté- riens.	Pro- tes- tants	Other Deno- mina- tions. — Autr's con- fes- sions.	Cities and Towns—Villes.	Rural Districts—Districts ruraux.																
Eng- land and Wales — Angle terre et Galles	Ire- land. — Ir- lande.	Scot- land. — Ecos- se.																													
MEURTRE.																															
			1	1				2							2																
			1	1				2							2																
	1							1						1																	
			1	1				1						1	1																
										1																					
	1		1	1				2			1			2	1																
			1	1				1					1		1																
														1	1																
			2					1					1		2																
	1		4	2				5			1		1	2	5																
TENTATIVE DE MEURTRE.																															
			1					1						1																	
			1					1						1																	
			2					2						2																	
HOMICIDE NON PREMÉDITÉ.																															
			1									1		1																	
			1					1							1																
			2					1				1		1	1																
				1							1			1																	
			1								1			1																	
			1								1				1																
1									1						1																
1			2						1		1	1		1	2																

TABLE I.		OFFENCES AGAINST THE PERSON.						CLASS I.		
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDICIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Persons charged. — Personnes accu- sées.	Ac- quit- ted. — Ac- quit- tés.	De- tained for Lu- nacy. — Em- pri- son- nés pour cause de folie.	CONVICTIONS. — CONDEMNATIONS.			SENTENCE.			
				Total.	Con- victed 1st. — Con- dam- nés une fois.	Con- victed 2nd. — Con- dam- nés deux fois.	Reite- rated. — Plus de 2 réci- des.	COMMITTED TO GAOL — EMPRISONNÉS.		
								With the option of a fine. — Sur option entre la pri- son ou l'a- m'nde	No OPTION. — SANS OPTION Un- der one year. — Moins d'un an.	One year and over. — Un an et plus.
MANSLAUGHTER— <i>Concluded.</i>										
Manitoba, Eastern.....	2	2	.....	.....	.....	.....	.....	.....	.....	.....
Victoria, B.C.....	3	.....	.....	3	2	1	.....	.....	.....	.....
Saskatchewan, N.-W.T.....	1	.....	.....	1	1	.....	.....	.....	.....	.....
Totals of Canada.....	19	9	.....	10	9	1	.....	1	.....	.....
RAPE.										
Northumberland, N.B.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....
Beauharnois, Que.....	1	.....	.....	1	.....	1	.....	.....	.....	.....
Quebec, Que.....	3	3	.....	.....	.....	.....	.....	.....	.....	.....
Three Rivers, Que.....	2	2	.....	.....	.....	.....	.....	.....	.....	.....
Totals of Quebec.....	6	5	.....	1	.....	1	.....	.....	.....	.....
Carleton, Ont.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....
Frontenac, Ont.....	1	.....	.....	1	1	.....	.....	.....	.....	.....
Grey, Ont.....	3	3	.....	.....	.....	.....	.....	.....	.....	.....
Hastings, Ont.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....
Huron, Ont.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....
Kent, Ont.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....
Oxford, Ont.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....
Peel, Ont.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....
Simcoe, Ont.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....
Stormont, D'das & Glengarry, O.	1	.....	.....	1	1	.....	.....	.....	.....	.....
Victoria, Ont.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....
Welland, Ont.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....
York, Ont.....	*10	7	.....	2	2	.....	.....	.....	.....	.....
Totals of Ontario.....	24	19	.....	4	4	.....	.....	.....	.....	.....
Victoria, B.C.....	1	.....	.....	1	1	.....	.....	.....	.....	.....
Alberta, Southern N.-W.T.....	†2	.....	.....	.....	.....	.....	.....	.....	.....	.....
Totals of Canada.....	34	25	.....	6	5	1	.....	.....	.....	.....
ATTEMPT AT RAPE.										
Cumberland, N.S.....	1	.....	.....	1	1	.....	.....	.....	.....	.....
Halifax, N.S.....	1	.....	.....	1	1	.....	.....	.....	1	.....
Totals of Nova Scotia.....	2	.....	.....	2	2	.....	.....	.....	1	.....

* 1 jury disagreed—1 le juré ne s'est pas accordé.

† Nolle prosequi.

TABLEAU L.													OUTRAGES CONTRE LA PERSONNE.													CLASSE I.		
SENTENCE.													OCCUPATIONS.													CIVIL CONDITIONS.		
PENITENTIARY.			D'th.	Com- mit- ted to Refor- ma- to- ries	Other Senten- ces.	OCCUPATIONS.						ÉTATS CIVILS.																
PÉNITENCIER.						—	—	—	Agri- cul- tural.	Com- mer- cial.	Do- mestic	In- dus- trial.	Pro- fes- sional	La- borers	Mar- ried.	Wi- dowed	Single											
Two years and un- der five.	Five years and over.	Life.	—	En- voyés à la prison de Refor- me.	Autres Senten- ces.	—	—	—	—	—	—	—	—	—	—													
D'un ans et m'ns de cinq.	Cinq ans et plus.	A vie	De mort			Agri- cul- teurs.	Com- mer- çants.	Servi- teurs.	In- dus- triels.	Pro- fes- sions libé- rales.	Jour- na- liers.	Ma- riés.	En- veu- vage.	Céli- ba- taires.														
HOMICIDE NON PRÉMÉDITÉ—Fin.																												
.....													
.....	2	1	.....	.....	.....	.....	.....	1	1	.....	1	1	.....	2							
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....						
2	5	1	.....	.....	1a.	2	.....	3	3	1	1	3	.....	6										
VIOL.																												
.....														
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	.....	.....												
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	.....	.....												
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1			
.....														
.....														
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....	.....												
.....	2	.....	.....	.....	.....	.....	1	.....	.....	.....	1	.....	.....	2				
.....	4	.....	.....	.....	.....	1	1	.....	.....	.....	2	1	.....	3						
.....	1	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	1			
.....														
.....	6	.....	.....	.....	.....	1	1	.....	1	.....	3	2	.....	4							
TENTATIVE DE VIOL.																												
1	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1	.....	.....	1			
1	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1	.....	.....	2			

a Sentence deferred.—Sentence remise.

TABLEAU I.															OUTRAGES CONTRE LA PERSONNE.															CLASSE I.		
BIRTH PLACES.															RELIGIONS.															RESI- DENCE.		
LIEUX DE NAISSANCE.																																
BRITISH ISLES.			Ca- nada.	Uni- ted States	Other Fo- reign Coun- tries.	Other Brit- ish Pos- ses- sions.	Bap- tists.	R. Ca- tho- lics.	Ch. of Eng- land.	Me- tho- dists.	Pres- byte- rians.	Pro- tes- tants	Other Deno- mina- tions.	Cities and Towns—Villes.	Rural Districts—Districts ruraux.																	
ILES BRITANNIQUES.																E- tats- Unis.	Autres pays étran- gers.	Autres posses- sions Bri- tanni- ques.	Bap- tistes.	Ca- tholi- ques.	Eglise d'An- gle- terre.	Mé- tho- dis- tes.	Pres- byte- riens.	Autr's con- fes- sions.								
Eng- land and Wales	Ire- land.	Scot- land.																														
Angle terre et Galles	Ir- lande.	Ecos- se.																														
HOMICIDE NON PRÉMÉDITÉ—Fin.																																
.....															
.....	1	.....	.....	.....	2	.....	.....	2	.....	.....	.....	.....	.....	1	3	.....	.....													
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1	.....														
1	1	.....	4	2	2	.....	.....	3	1	.....	2	2	2	6	4	.....	.....													
VIOL.																																
.....															
.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1	.....														
.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1	.....														
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1	.....														
.....															
.....															
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1	.....														
.....	2	.....	.....	.....	.....	1	1	.....	.....	.....	.....	.....	2	.....	.....													
.....	4	.....	.....	.....	.....	3	1	.....	.....	.....	.....	2	2	.....	.....													
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	1	1	.....	.....													
.....															
.....	4	1	1	.....	.....	4	1	.....	.....	.....	.....	1	3	3	.....														
TENTATIVE DE VIOL.																																
.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1	.....														
.....	1	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....														
.....	2	.....	.....	.....	1	.....	1	.....	.....	.....	.....	.....	2	.....														

TABLE I.

OFFENCES AGAINST THE PERSON.

CLASS I.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDICIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Persons charged. — Per- sonnes accu- sées.	Ac- quit- ted. — Ac- quit- tés.	De- tained for Lu- nacy. — Em- pri- son- nés pour cause de folie.	CONVICTIONS. — CONDAMNATIONS.				SENTENCE.		
								COMMITTED TO GAOL — EMPRISONNÉS.		
				Total.	Con- victed 1st.	Con- victed 2nd.	Reite- rated.	With the option of a fine. — Sur option entre la pri- son ou l'a- m'nde	No OPTION. — SANS OPTION.	
					— Con- dam- nés une fois.	— Con- dam- nés deux fois.	— Plus de 2 récidi- ves.		Un- der one year. — Moins d'un an.	One year and over. — Un an et plus.

ATTEMPT AT RAPE—*Concluded.*

King's, N.B.....	1			1	1				1	
Bonaventure, Que.....	1			1	1					
Gaspe, Que.....	1			1	1					
Quebec, Que.....	1			1	1					
St. Francis, Que.....	1	1								
Totals of Quebec.....	4	1		3	3					
Carleton, Ont.....	1			1	1					1
Hastings, Ont.....	1			1	1					1
Leeds and Grenville Ont.....	1			1	1					1
Victoria, Ont.....	1	1								
Wentworth, Ont.....	1	1			1					
York, Ont.....	3	2		1	1				1	
Totals of Ontario.....	8	4		4	4				1	3
New Westminster, B.C.....	1			1	1					1
Assiniboia, Western, N.W.T....	1			1	1					
Totals of Canada.....	17	5		12	12				3	4

ATTEMPT AND CARNALLY KNOWING A GIRL OF TENDER YEARS.

Montreal, Que.....	4	1		3	1	2				*2
Carleton, Ont.....	1	1								
Northumberland & Durham, O..	1	1								
Simcoe, Ont.....	1	1								
Stormont, D'das & Glengarry, O.	1	1								
Wentworth, Ont.....	1			1	1				1	
York, Ont.....	2	2								
Totals of Ontario.....	7	6		1	1				1	
Victoria, B.C.....	3	2		1	1					
Assiniboia, Eastern, N.W.T....	1			1	1					
Totals of Canada.....	15	9		6	4	2			1	2

*And to receive 50 lashes. — Et à recevoir 50 coups de fouet.

TABLEAU I.							OUTRAGES CONTRE LA PERSONNE.						CLASSE I.		
SENTENCE.							OCCUPATIONS.						CIVIL CONDITIONS.		
PENITENTIARY. — PÉNITENCIER.			D'th. — De mort	Com- mit- ted to Refor- ma- tories — En- voyés à la prison de Ré- forme.	Other Senten- ces. — Autres Senten- ces.							ÉTATS CIVILS.			
Two years and un- der five. — D'ux ans et m'ns de cinq.	Five years and over. — Cinq ans et plus.	Life. — A vie.				Agric- tural. — Agric- culteurs.	Com- mer- cial. — Com- mer- çants.	Do- mestic — — Servi- teurs.	In- dus- trial. — In- dus- triels.	Pro- fes- sional — — Pro- fes- sions libé- rales.	La- borers — — Jour- na- liers.	Mar- ried. — Ma- riés.	Wi- dowed — — En- ven- vage.	Single — — Céli- ba- taires.	
TENTATIVE DE VIOL—Fin.															
1											1				
1										1	1				
	1							1			1				
2	1							1		1	3				
										1	1				
										1	1				
										1			1		
										1			1		
										4	2		2		
1															
4	1							2		6	5		4		
TENTATIVE ET COMMERCE CHARNEL AVEC UNE FILLE EN BAS AGE.															
1								1			3				
								1			1				
								1			1				
	*1									1			1		
	1						1				1				
1	2						1	1		1	5		1		

*And to receive 12 lashes.—Et a recevoir 12 coups de fouet.

TABLE I.

OFFENCES AGAINST THE PERSON.

CLASS I.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.										USE OF LIQUORS. — USAGE DE LIQUEURS	
	Un- able to read or write.	Ele- men- tary.	Super- rior.	Under 16 years.	16 years and under 21.	21 years and under 40.	40 years and over.	Not given.	Mo- de- rate		Im- mo- de- rate				
	—	—	—	Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non- donné.							
	Inca- pable de lire ou d'é- crire.	Elé- men- taire.	Supé- rieure	M. F	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	Mo- dé- ré	Im- mo- dé- ré			

ATTEMPT AT RAPE.—*Concluded.*

King's, N.-B.														1		
Bonaventure, Qué.	1							1						1		1
Gaspé, Qué.	1													1		1
Québec, Qué.		1						1							1	
St. François, Qué.																
Totaux de Québec.	2	1						2						1	1	2
Carleton, Ont.	1									1						1
Hastings, Ont.		1						1								1
Leeds et Grenville, Ont.		1			1											1
Victoria, Ont.																
Wentworth, Ont.																
York, Ont.		1						1							1	
Totaux d'Ontario.	1	3			1		2		1						1	3
New Westminster, Col.-B.														1		
Assiniboia Ouest, T. du N.-O.														1		
Totaux du Canada.	3	6			3		4		1					4	3	6

ATTEMPT AND CARNALLY KNOWING A GIRL OF TENDER YEARS.

Montréal Qué.	1	2					2		1							3
Carleton, Ont.																
Northumberland et Durham, O.																
Simcoe, Ont.																
Storm't, D'las et Gleng'ry, O.																
Wentworth, Ont.							1									1
York, Ont.																
Totaux d'Ontario.							1									1
Victoria, Col.-B.		1					1								1	
Assiniboia, Est, T. du N.-O.														1		
Totaux du Canada.	1	3					4		1					1	1	4

TABLEAU I.													OUTRAGES CONTRE LA PERSONNE.					CLASSE I.	
BIRTH PLACES.							RELIGIONS.							RESI- DENCE.					
LIEUX DE NAISSANCE.																			
BRITISH ISLES.			Ca- nada.	Uni- ted States — Etats- Unis.	Other Fo- reign Coun- tries. — Autr's pays étran- gers.	Other Bri- tish Pos- ses- sions. — Autr's posses- sions Bri- tanni- ques.	Bap- tists. — Bap- tistes.	R. Ca- tho- lics. — Ca- tholi- ques.	Ch. of Eng- land. — Eglise d'An- gle- terre.	Me- tho- dists — Mé- tho- dis- tes.	Pres- bye- rians. — Pres- byté- riens.	Pro- tes- tants	Other Deno- mina- tions. — Autr's con- fes- sions.	Cities and Towns— Villes.	Rural Districts— Districts ruraux.				
ILES BRITANNIQUES.																			
Eng- land and Wales — Angle terre et Galles	Ire- land. — Ir- lande.	Scot- land. — Ecos- se.																	
TENTATIVE DE VIOL—Fin.																			
			1					1							1				
			1					1							1				
			1					1						1					
			3					3						1	2				
			1					1						1					
			1						1	1				1	1				
			1						1					1					
			1					1						1					
			4					2	1	1				3	1				
			9				1	5	1	2				4	5				
TENTATIVE ET COMMERCE CHARNEL AVEC UNE FILLE EN BAS AGE.																			
			3					3						3					
			1								1			1					
			1								1			1					
1									1					1					
															1				
1			4					3	1		1			5	1				

TABLE I.

OFFENCES AGAINST THE PERSON.

CLASS I.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDICIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Persons charged. — Personnes accu- sées.	Ac- quit- ted. — Ac- quit- tés.	De- tained for Lu- nacy. — Em- pri- son- nés pour cause de folie.	CONVICTIONS. — CONDEMNATIONS.				SENTENCE.		
				Total.	Con- victed 1st. — Con- dam- nés une fois.	Con- victed 2nd. — Con- dam- nés deux fois.	Reite- rated. — Plus de 2 rédi- ves.	COMMITTED TO GAOL — EMPRISONNÉS.		
								With the option of a fine. — Sur option entre la pri- son ou l'a- m'nde	NO OPTION.	
									SANS OPTION.	— Under one year. — Moins d'un an.	— One year and over. — Un an et plus.
SHOOTING, STABBING, WOUNDING.										
Cape Breton, N.S.	1			1	1			1		
Cumberland, N.S.	2	1		1	1			1		
Halifax, N.S.	1	1								
Hants, N.S.	3	3								
Totals of Nova Scotia.	7	5		2	2			2		
Charlotte, N.B.	1			1	1			1		
Montreal, Que.	12	4		8	7	1	1	3	1	
Ottawa, Que.	1			1	1			1		
Quebec, Que.	3	2		1		1				
Richelieu, Que.	1	1								
St. Francis, Que.	1			1	1			1		
St. Hyacinthe, Que.	2	1		1	1					
Terrebonne, Que.	1			1	1					
Three Rivers, Que.	4			4	3	1		3		
Totals of Quebec.	25	8		17	14	2	1	8	1	
Algoma, Ont.	2			2	2		1			
Brant, Ont.	1			1	1			1		
Bruce, Ont.	1		1							
Carleton, Ont.	4	1		3	2	1		2		
Dufferin, Ont.	1			1	1					
Essex, Ont.	*1									
Frontenac, Ont.	3	1		2	1	1	1			
Grey, Ont.	1			1	1					
Hastings, Ont.	1	1								
Kent, Ont.	+2	1								
Lambton, Ont.	1	1								
Leeds and Grenville, Ont.	1			1	1				1	
Lincoln, Ont.	1	1								
Middlesex, Ont.	2			2	2			2		
Ontario, Ont.	1	1								
Oxford, Ont.	1			1	1					
Peterborough, Ont.	1			1	1			1		
Simcoe, Ont.	3			3	3					
Stormont, D'das & Glengarry, O.	1	1								
Welland, Ont.	2	2								
Wellington, Ont.	2	1		1	1			1		
Wentworth, Ont.	1	1								
York, Ont.	65	33		32	32		3	18		
Totals of Ontario.	99	45	1	51	49	2	5	25	1	
Manitoba, Eastern.	4	2		2	2			1		
Manitoba, Western.	1			1	1					
Totals of Manitoba.	5	2		3	3			1		

* f Left the country ; bail forfeited

† A laissé le pays ; cautionnement confisqué.

+ f1 escaped before trial.

† 1 évadé avant son procès.

TABLEAU I.

OUTRAGES CONTRE LA PERSONNE.

CLASSE I.

SENTENCE.						OCCUPATIONS.						CIVIL CONDITIONS.		
PENITENTIARY. — PÉNITENCIER.												ÉTATS CIVILS.		
Two years and under five.	Five years and over.	Life.	D'th.	Committed to Reformatories.	Other Sentences.	Agricultural.	Commercial.	Domestic.	Industrial.	Professional.	Labourers.	Married.	Widowed.	Single.
Deux ans et moins de cinq.	Cinq ans et plus.	A vie.	De mort.	Envoyés à la prison de Réforme.	Autres Sentences.	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	Agri- cul- tural.	Com- mer- cial.	Do- mestic.	In- dus- trial.	Pro- fes- sional.	La- borers.	Mar- ried.	Wi- dowed.	Single.
—	—	—	—	—	—	Agri- cul- teurs.	Com- mer- çants.	Servi- teurs.	In- dus- triels.	Pro- fes- sions libé- rales.	Jour- na- liers.	Ma- riés.	En veu- vage.	Céli- ba- itaires.

USAGE D'ARMES AVEC INTENTION.

							1				1			1
											1			1
							1				1			2
							1				1			
	1				2a.				3	1	3	1	1	6
	1								1			1		1
	1						1				1	1		1
					1b.	1					1	1		1
					1a.	3					1	3		1
	3				3a, 1b.	1	4		5	1	5	7	1	9
	1					1					1	1		1
											1	1		
	1								1		2	2		1
					1a.						1			
	1				1a.	1					1			1
											1			
							1	1					1	1
					1a.				1			1		
2	1								1			1		3
						1								1
2	1				8a.	1	4		3		19	12		20
4	5				11a.	4	5	1	9		26	19	1	29
					1a.	2								2
1												1		
1					1a.	2						1		2

a { Sentence deferred.
 { Sentence remise.

b { Bound to keep the peace.
 { Tenus de garder la paix.

TABLE I.			OFFENCES AGAINST THE PERSON.												CLASS I.	
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.										USE OF LIQUORS. — USAGE DE LIQUEURS		
	Un- able to read or write.	Ele- men- tary.	Sape- rior.	Under 16 years.	16 years and under 21.	21 years and under 40.	40 years and over.	Not given.	Mo- de- rate	Im- mo- de- rate						
				Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non donné.								
				M. F	M. F.	M. F.	M. F.	M. F.			M. F.					
	Inca- pable de lire ou d'é- crire.	Elé- men- taire.	Supé- rieure	M. F	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.			
SHOOTING, STABBING, WOUNDING.																
Cap-Breton, N.-E.		1				1				1						
Cumberland, N.-E.		1							1		1					
Halifax, N.-E.																
Hants, N.-E.																
Totaux de la N.-Ecosse.		2				1			1		2					
Charlotte, N.-B.			1					1			1					
Montréal, Qué.	2	6			2	4	1	1				8				
Ottawa, Qué.	1							1			1					
Québec, Qué.	1					1						1				
Richelieu, Qué.																
St. François, Qué.		1							1		1					
St. Hyacinthe, Qué.		1				1						1				
Terrebonne, Qué.		1							1		1					
Trois-Rivières, Qué.	2	2			1	3					3	1				
Totaux de Québec.	6	11			3	9	1	2		2	6	11				
Algoma, Ont.		2						2			2					
Brant, Ont.		1				1					1					
Bruce, Ont.																
Carleton, Ont.	1	2				1		2			1	2				
Dufferin, Ont.		1		1							1					
Essex, Ont.																
Frontenac, Ont.						2										
Grey, Ont.		1				1						1				
Hastings, Ont.																
Kent, Ont.																
Lambton, Ont.																
Leeds et Grenville, Ont.		1						1				1				
Lincoln, Ont.																
Middlesex, Ont.		2			1		1				1					
Ontario, Ont.																
Oxford, Ont.		1						1			1					
Peterborough, Ont.		1				1						1				
Simcoe, Ont.	2	1			3							3				
Storm't, D'das et Gleng'ry, O																
Welland, Ont.																
Wellington, Ont.		1						1			1					
Wentworth, Ont.																
York, Ont.	8	22	2	1	7	14	2	7	1		19	13				
Totaux d'Ontario.	11	36	2	2	11	20	3	13	2		27	22				
Manitoba, Est		2				2					2					
Manitoba, Ouest								1								
Totaux de Manitoba.		2				2		1			2					

TABLEAU I.										OUTRAGES CONTRE LA PERSONNE.						CLASSE I.		
BIRTH PLACES.										RELIGIONS.						RESI- DENCE.		
LIEUX DE NAISSANCE.																		
BRITISH ISLES.			Canada.	United States.	Other Foreign Countries.	Other British Possessions.	Baptists.	R. Catholics.	Ch. of England.	Methodists.	Presbyterians.	Protestants.	Other Denominations.	Villes.	Districts.			
Eng-land and Wales.	Ire-land.	Scot-land.														Autr's posses-sions Bri-tanni-ques.	Autr's posses-sions Bri-tanni-ques.	Bap-tistes.	Catho-licques.	Eglise d'An-gle-terre.	Mé-tho-dis-tes.	Pres-byté-riens.	Autr's con-fes-sions.	Cities and Towns.	Rural Districts—rurau.
Angle-terre et Galles.	Ir-lan-de.	Ecos-se.		Etats-Unis.	Autr's pays étran-gers.													
USAGE D'ARMES AVEC INTENTION.																		
			1		1			1					1	1	1			
			1		1			1					1	1	1			
			1								1				1			
1	2		4		1			7					1	6	2			
			1					1							1			
1			1					1				1		1	1			
			1		1			1										
			3		1			3					1	4	1			
2	2		11		2			14				1	2	11	6			
	1		1					1			1			1	2			
			1					1										
	1		2					3						2	1			
	1							1						1				
2												2		1	1			
			1					1						1				
			1		1			1		1				2				
										1								
	1							1										
			1	1	1			1		1	1		1	3				
												1			1			
2	8	2	17		3			18	8	3	3			30	2			
4	13	2	25	2	5			27	8	6	6	3	1	43	8			
			1		1			1					1		2			
				1											1			
			1	1	1			1					1		3			

TABLE I.		OFFENCES AGAINST THE PERSON.						CLASS I.		
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDICIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Persons charged. — Per- sonnes accu- sées.	Ac- quit- ted. — Ac- quit- tés.	De- tained for Lu- nacy. — Em- pri- son- nés pour cause de folie.	CONVICTIONS. — CONDAMNATIONS.				SENTENCE.		
				Total.	Con- victed 1st. — Con- dam- nés une fois.	Con- victed 2nd. — Con- dam- nés deux fois.	Reite- rated. — Plus de 2 rédi- ves.	COMMITTED TO GAOL — EMPRISONNÉS.		
								With the option of a fine. — Sur option entre la pri- son ou l'a- m ^{nde}	No OPTION. — SANS OPTION — Un- der one year. — Moins d'un an. — Un an et plus.	
SHOOTING, STABBING, WOUNDING.— <i>Concluded.</i>										
Clinton, B.C.	2			2	2					
Victoria, B.C.	2	1		1	1					
Totals of British Columbia.	4	1		3	3					
Totals of Canada.	141	61	1	77	72	4	1	6	37	2
ENDANGERING SAFETY OF PASSENGERS ON RAILWAYS.										
Cape Breton, N.S.	2			2	2					
Westmoreland, N.B.	1		1							
Bruce, Ont.	1	1								
Carleton, Ont.	1	1								
Elgin, Ont.	1	1								
Simcoe, Ont.	3		1	2	2					
Thunder Bay, Ont.	1			1	1					
York, Ont.	3	3								
Totals of Ontario.	10	6	1	3	3					
Totals of Canada.	13	6	2	5	5					
REFUSING TO PROVIDE FOR FAMILY.										
Halifax, N.S.	1			1	1					
Beauharnois, Que.	1			1	1				1	
Montreal, Que.	*64	28		35	34		1		7	2
Three Rivers, Que	1	1								
Totals of Quebec.	66	29		36	35		1		8	2
Brant, Ont.	3	1		2	2				2	
Essex, Ont.	1			1	1				1	
Kent, Ont.	2			2	1	1			1	1
Lambton, Ont.	1			1	1					
Middlesex, Ont.	4	1		3	3				1	
Welland, Ont.	1	1								
Wentworth, Ont.	23	21		2	2				1	
York, Ont.	17	12		5	5					
Totals of Ontario.	52	36		16	15	1			6	1
Manitoba, Eastern.	1	1								
Totals of Canada.	120	66		53	51	1	1		14	3

* 1 nolle prosequi.

TABLEAU I.														OUTRAGES CONTRE LA PERSONNE.														CLASSE I.													
SENTENCE.														OCCUPATIONS.														CIVIL CONDITIONS.													
PENITENTIARY.														OCCUPATIONS.														ÉTATS CIVILS.													
PÉNITENCIER.																																									

7c—2½

a { Sentence deferred.
 { Sentence remise.

b { Deprived of custody of children.
 { Privé de la garde de ses enfants.

c { To pay \$2 weekly.
 { A payer \$2 chaque semaine.

TABLE I.			OFFENCES AGAINST THE PERSON.												CLASS I.	
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.										USE OF LIQUORS. — USAGE DE LIQUEURS		
	Un- able to read or write. — Inca- pable de lire ou d'é- crire.	Ele- men- tary. — Elé- men- taire.	Supe- rior. — Supé- rieure	Under 16 years. — Moins de 16 ans.		16 years and under 21. — 16 ans et moins de 21.		21 years and under 40. — 21 ans et moins de 40.		40 years and over. — 40 ans et plus.		Not given. — Non- donné.		Mo- de- rate	Im- mo- de- rate	
				M.	F.	M.	F.	M.	F.	M.	F.	M.	F.			
				H.	F.	H.	F.	H.	F.	H.	F.	H.	F.			
SHOOTING, STABBING, WOUNDING— <i>Concluded.</i>																
Clinton, Col.-B.		2						2						2		
Victoria, Col.-B.		1								1				1		
Totaux de la Col.-Britann.		3						2		1				3		
Totaux du Canada	17	54	3	2	14		34	4	18	2	3		41	33		
ENDANGERING SAFETY OF PASSENGERS ON RAILWAYS.																
Cap-Breton, N.-E.	1	1		1	1									2		
Westmoreland, N.-B.																
Bruce, Ont.																
Carleton, Ont.																
Elgin, Ont.																
Simcoe, Ont.	1	1			1		1							2		
Thunder Bay, Ont.		1							1					1		
York, Ont.																
Totaux d'Ontario.	1	2			1		1		1					3		
Totaux du Canada	2	3		1	2		1		1				2	3		
REFUSING TO PROVIDE FOR FAMILY.																
Halifax, N.-E.		1					1							1		
Beauharnois, Qué.		1					1							1		
Montréal, Qué.	13	22					32		3					35		
Trois-Rivières, Qué.																
Totaux de Québec.	13	23					33		3				1	35		
Brant, Ont.	1	1					1		1				1	1		
Essex, Ont.		1							1					1		
Kent, Ont.		2					1				1			1		
Lambton, Ont.		1					1						1			
Middlesex, Ont.	1	2					2		1				3			
Welland, Ont.																
Wentworth, Ont.		2					1		1					2		
York, Ont.		4	1				1		3	1			4	1		
Totaux d'Ontario.	2	13	1				7		7	1	1		9	6		
Manitoba, Est.																
Totaux du Canada	15	37	1				41		10	1	1		11	41		

TABLEAU I. OUTRAGES CONTRE LA PERSONNE. CLASSE I.														
BIRTH PLACES. LIEUX DE NAISSANCE.						RELIGIONS.							RESI- DENCE.	
BRITISH ISLES. — ILES BRITANNIQUES.			Canada.	United States — Etats-Unis.	Other Foreign Countries. — Autr's posses- sions étran- gers.	Other British Possessions. — Autr's posses- sions Bri- tanni- ques.	Bap- tists. — Bap- tistes.	R. Ca- tho- lics. — Catho- liques.	Ch. of Eng- land. — Eglise d'An- gle- terre.	Me- tho- dists — Me- tho- dis- tes.	Pres- byte- rians. — Pres- byte- riens.	Pro- tes- tants — Autr's con- fes- sions.	Cities and Towns—Villes. — Rural Districts— Districts ruraux.	
Eng- land and Wales — Angle- terre et Galles	Ire- land. — Ir- lande.	Scot- land. — Ecos- se.			Autr's posses- sions Bri- tanni- ques.	Autr's posses- sions Bri- tanni- ques.	Autr's posses- sions Bri- tanni- ques.	Autr's posses- sions Bri- tanni- ques.	Autr's posses- sions Bri- tanni- ques.	Autr's posses- sions Bri- tanni- ques.	Autr's posses- sions Bri- tanni- ques.	Autr's posses- sions Bri- tanni- ques.	Autr's posses- sions Bri- tanni- ques.	Autr's posses- sions Bri- tanni- ques.
1	1	1			1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
7	15	2	40	3	10	45	9	6	7	4	5	56	21	
USAGE D'ARMES AVEC INTENTION—Fin.														
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1</			

TABLE I.

OFFENCES AGAINST THE PERSON.

CLASS I.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDICIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Persons charged — Personnes accu- sées.	Ac- quit- ted. — Ac- quit- tés.	De- tained for Lu- nacy. — Em- pri- son- nés pour cause de folie.	CONVICTIONS. — CONDAMNATIONS.				SENTENCE.			
								COMMITTED TO GOAL — EMPRISONNÉS.			
				Total.	Con- victed 1st. — Con- dam- nés une fois.	Con- victed 2nd. — Con- dam- nés deux fois.	Reite- rated. — Plus de 2 réci- dives.	With the option of a fine. — Sur option entre la pri- son ou l'a- m'nde	NO OPTION. — SANS OPTION		
									Un- der one year. — Moins d'un an.	One year and over. — Un an et plus.	
INDECENT ASSAULT.											
Colchester, N.S.	3	1	...	2	2				2		
Cumberland, N.S.	1		...	1	1					1	
Halifax, N.S.	2	1	...	1	1						
Pictou, N.S.	*1		...								
Totals of Nova Scotia.	7	2		4	4				2	1	
Carleton, N.B.	1		...	1	1				1		
Montreal, Que.	10	3	1	6	4	1	1	2		+1	
Ottawa, Que.	1	1	...								
Rimouski, Que.	1		...	1	1					1	
St. Francis, Que.	1		...	1	1			1			
Terrebonne, Que.	2		...	2	2					1	
Three Rivers, Que.	†1		...								
Totals of Quebec.	16	4	1	10	8	1	1	3		3	
Algoma, Ont.	3	1	...	2	1	1			1		
Brant, Ont.	3	3	...								
Bruce, Ont.	2	2	...								
Carleton, Ont.	1		...	1			1			1	
Elgin, Ont.	1		...	1	1					1	
Essex, Ont.	1		...	1	1					1	
Frontenac, Ont.	1		...	1	1					1	
Kent, Ont.	3	3	...								
Lambton, Ont.	3	3	...								
Leeds and Grenville, Ont.	3	1	...	2	2				1		
Lennox and Addington, Ont.	1		...	1			1				
Middlesex, Ont.	2	1	...	1	1				1		
Norfolk, Ont.	1	1	...								
Northumberland & Durham, Ont.	2	2	...								
Peterborough, Ont.	1		...	1	1				1		
Prescott and Russell, Ont.	1	1	...								
Prince Edward, Ont.	1		...	1	1			1			
Simcoe, Ont.	1		...	1	1				\$1		
Welland, Ont.	1		...	1	1				1		
Wellington, Ont.	2		...	2	2					2	
Wentworth, Ont.	3	1	...	2	1		1		2		
York, Ont.	9	4	...	5	5				4		
Totals of Ontario.	46	23		23	19	1	3	1	12	6	
Manitoba, Eastern.	1		...	1	1				1		
Alberta, Southern, N.W.T.	4	4	...								
Totals of Canada.	75	33	1	39	33	2	4	4	16	10	

(Left the country ; bail forfeited.

(A laissé le pays ; cautionnement confisqué.

† (And 50 lashes.

† (Et 50 coups de fouet.

‡ *Nolle prosequi.*

TABLEAU I.						OUTRAGES CONTRE LA PERSONNE.						CLASSE I.			
SENTENCE.						OCCUPATIONS.						CIVIL CONDITIONS.			
PENITENTIARY. — PÉNITENCIER.			D'th. — De mort	Com- mit- ted to Refor- ma- to- ries. — Envoyés à la prison de Réfor- me.	Other Senten- ces. — Autres Senten- ces.	Agricultural. — Agriculteurs.	Commercial. — Commerçants.	Domestic. — Servi- teurs.	Industrial. — Indus- triels.	Profes- sional — Pro- fes- sions libé- rales.	La- borers — Jour- na- liers.	Mar- ried. — Mariés.	Wi- dowed — En- veu- vage.	Single — Céli- ba- taires.	
Two years and un- der five. — Deux ans et m'ns de cinq.	Five years and over. — Cinq ans et plus.	Life. — A vie													
ATTENTAT À LA PUDEUR.															
.....	1	.....	.....	2	.....	.....	.....	.....	.....	2
*1	1	.....	.....	1	.....	.....	.....	.....	.....	1
1	1	.....	.....	3	.....	.....	.....	.....	.....	4
.....	1	.....	.....	.....	.....	.....	1	.....	.....	.....
1	2a.	2	1	3	5	1
.....	1	1
.....	1	1	1	1
.....	2
1	1	2a.	1	2	1	6	8	2
1	2	1	1
.....	1	1
.....	1	1	1
.....	1	1	1
.....	1	1
.....	1a.	2	1	1
.....	1a.	1	1
.....	1
.....	1	1
.....	1	1
.....	1	1
.....	1	1
.....	1	1
.....	1	1
.....	1	1
.....	1	1
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.....	1	1
.....	1	1
.....	1	1
.....	1	1
.....	1	1
.....	1	1
.....	1	1
.....	1	1
.....	1	1
.....	1	1
.....	1	1
.....							

2

And 24 lashes.

Et 24 coups de fouet.

*

And 40 lashes

Et 40 coups de fouet.

a

Sentence deferred.

Sentence remise

TABLE I.

OFFENCES AGAINST THE PERSON.

CLASS I.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.										USE OF LIQUORS. — USAGE DE LIQUEURS	
	Un- able to read or write. — Inca- pable de lire ou d'é- crire.	Ele- men- tary. — Elé- men- taire.	Sape- rior. — Supé- rieure	Under 16 years. — Moins de 16 ans.	16 years and under 21. — 16 ans et moins de 21.	21 years and under 40. — 21 ans et moins de 40.	40 years and over. — 40 ans et plus.	Not given. — Non donné.	Mo- de- rate — Mo- dé- ré	Im- mo- de- rate — Im- mo- dé- ré					
				M.	F.	M.	F.	M.			F.	M.	F.	M.	F.
				—	—	—	—	—			—	—	—	—	—
INDECENT ASSAULT.															
Colchester, N.-E.	2					2								2	
Cumberland, N.-E.	1								1				1		
Halifax, N.-E.	1					1							1		
Pictou, N.-E.															
Totaux de la N.-Ecosse.	4					3			1				2	2	
Charlotte, N.-B.	1					1							1		
Montréal, Qué.	6					2		4					1	5	
Ottawa, Qué.															
Rimouski, Qué.	1							1					1		
St. François, Qué.	1					1							1		
Terrebonne, Qué.	2		1						1				2		
Trois-Rivieres, Qué.															
Totaux de Québec.	10		1			3		5		1			5	5	
Algoma, Ont.	1	1				1		1					1	1	
Brant, Ont.															
Bruce, Ont.															
Carleton, Ont.	1					1								1	
Elgin, Ont.	1												1		
Essex, Ont.	1					1								1	
Frontenac, Ont.	1					1								1	
Kent, Ont.															
Lambton, Ont.															
Leeds et Grenville, Ont.	2					2								2	
Lennox et Addington, Ont.	1					1								1	
Middlesex, Ont.	1					1							1		
Norfolk, Ont.															
Northumberl'd et Durham, O.															
Peterborough, Ont.	1					1							1		
Prescott et Russell, Ont.															
Prince-Edouard, Ont.									1						
Simcoe, Ont.	1				1								1		
Welland, Ont.	1				1								1		
Wellington, Ont.	2					2								2	
Wentworth, Ont.	1	1						2					2		
York, Ont.	3	2				3		2					1	4	
Totaux d'Ontario.	6	16			2	14		6		1			7	15	
Manitoba, Est	1			1									1		
Alberta, Sud, T. du N.-O.															
Totaux du Canada	6	32		2	2	21		11		3			16	22	

TABLE I.

OFFENCES AGAINST THE PERSON.

CLASS I.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDICIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Persons charged. — Per- sonnes accusées	Ac- quit- ted. — Ac- quit- tés.	De- tained for Lu- nacy. — Em- pri- son- nés pour cause de folie.	CONVICTIONS. — CONDEMNATIONS.				SENTENCE.			
								COMMITTED TO GAOL — EMPRISONNÉS.			
				Total.	Con- victed 1st.	Con- victed 2nd.	Reite- rated.	With the option of a fine. — Sur option entre la pri- son ou l'a- me'de	No OPTION. — SANSOPTION		
					Con- dam- nés une fois.	Con- dam- nés deux fois.	Plus de 2 rédi- ves.		Un- der one year. — Moins d'un an.	One year and over. — Un an et plus.	
SODOMY AND BESTIALITY.											
Montreal, Que.....	1	1									
Richelieu, Que.....	1	1									
Totals of Quebec.....	2	2									
Carleton, Ont.....	1	1									
Elgin, Ont.....	1			1	1						
Simcoe, Ont.....	1			1		1					
Totals of Ontario.....	3	1		2	1	1					
New Westminster, B.C.....	1			1	1						
Totals of Canada.....	6	3		3	2	1					
CONCEALING THE BIRTH OF INFANTS.											
Cumberland, N.S.....	1	1									
Westmoreland, N.B.....	1			1	1				1		
Montreal, Que.....	1			1	1				1		
St. Francis, Que.....	1			1	1					1	
Totals of Quebec.....	2			2	2				1	1	
Leeds and Grenville, Ont.....	1	1									
New Westminster, B.C.....	1	1									
Saskatchewan, N.W.T.....	1	1									
Totals of Canada.....	7	4		3	3				2	1	
ABORTION AND ATTEMPT TO PROCURE ABORTION.											
Halifax, N.S.....	1			1	1						
Haldimand, Ont.....	2	2									
Totals of Canada.....	3	2		1	1						

TABLEAU I. OUTRAGES CONTRE LA PERSONNE. CLASSE I.													
BIRTH PLACES. LIEUX DE NAISSANCE.							RELIGIONS.						
BRITISH ISLES. ILES BRITANNIQUES.			Canada.	United States — Etats-Unis.	Other Foreign Countries.	Other British Possessions.	Baptists.	R. Catholics.	Ch. of England.	Methodists.	Presbyterians.	Protestants	Other Denominations.
England and Wales	Ireland.	Scotland.			— Autres pays étrangers.	Autr's possessions Britanniques.	Baptistes.	Catholiques.	Eglise d'Angleterre.	Méthodistes.	Presbytériens.	Autr's confessions.	Autr's confessions.
Angle terre et Galles	Irlande.	Ecosse.											
SODOMIE ET BESTIALITÉ.													
			1					1	1				1
			1										1
			2					1	1				2
			2					1	1				2
SUPPRESSION D'ENFANTS.													
			1				1						1
			1					1					1
			1					1					1
			2					2					1 1
			3				1	2					2 1
AVORTEMENT ET TENTATIVE D'AVORTEMENT.													
			1					1					1
			1					1					1

TABLE I.				OFFENCES AGAINST THE PERSON.				CLASS I.			
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDICIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Persons charged. — Personnes accu- sées.	Ac- quit- ted. — Ac- quit- tés.	De- tained for Lu- nacy. — Em- pri- son- nés pour cause de folie.	CONVICTIONS. — CONDAMNATIONS.				SENTENCE. — COMMITTED TO GAOL — EMPRISONNÉS.			
				Total.	Con- victed 1st.	Con- victed 2nd.	Reite- rated.	With the option of a fine. — Sur option entre la pri- son ou l'a- m'nde	No OPTION. — Sans OPTION.	— Un- der one year. — Moins d'un an.	— One year and over. — Un an et plus.
					Con- dam- nés une fois.	Con- dam- nés deux fois.	Plus de 2 réci- ves.				
DESERTING CHILD.											
Halton, Ont.....	1	.....	.....	1	1	.....	.....	.....	1	.....
Middlesex, Ont.....	1	.....	.....	1	1	.....	.....	.....	.....	.....
Wellington, Ont.....	2	.....	.....	2	2	.....	.....	2	.....	.....
Totals of Ontario.....	4	.....	.....	4	4	.....	.....	2	1	.....
Totals of Canada.....	4	.....	.....	4	4	.....	.....	2	1	.....
BIGAMY.											
Brant, Ont.....	2	1	.....	1	1	.....	.....	.....	.....	.....
Halton, Ont.....	1	.....	.....	1	1	.....	.....	.....	.....	1
Hastings, Ont.....	2	.....	.....	2	2	.....	.....	.....	1	1
Kent, Ont.....	1	.....	.....	1	1	.....	.....	.....	1	.....
Middlesex, Ont.....	1	.....	.....	1	.....	1	.....	.....	.....	.....
Norfolk, Ont.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....
Northumberland & Durham, O.....	1	.....	.....	1	.....	1	.....	.....	1	.....
Renfrew, Ont.....	1	.....	.....	1	1	.....	.....	.....	.....	.....
Simcoe, Ont.....	1	.....	.....	1	1	.....	.....	.....	.....	.....
Wentworth, Ont.....	1	.....	.....	1	1	.....	.....	.....	1	.....
York, Ont.....	1	.....	.....	1	1	.....	.....	.....	.....	.....
Totals of Ontario.....	13	2	.....	11	9	2	.....	.....	4	2
Totals of Canada.....	13	2	.....	11	9	2	.....	.....	4	2
ASSAULT ON FEMALES.											
Queen's, P.E.I.	7	1	.....	6	6	.....	.....	.....	6	.....
Montreal, Que.....	52	23	.....	29	28	1	.....	16	7	.....
Three Rivers, Que.....	5	1	.....	1	1	.....	.....	.....	.....	.....
Totals of Quebec.....	57	24	.....	30	29	1	.....	16	7	.....
Algoma, Ont.....	1	.....	.....	1	1	.....	.....	.....	1	.....
Carleton, Ont.....	1	.....	.....	1	1	.....	.....	.....	.....	1
Hastings, Ont.....	1	.....	.....	1	1	.....	.....	1	.....	.....
Kent, Ont.....	1	.....	.....	1	1	.....	.....	1	.....	.....
Middlesex, Ont.....	1	.....	1	.....	.....	.....	.....	.....	.....	.....
Simcoe, Ont.....	1	.....	.....	1	1	.....	.....	.....	1	.....
Wentworth, Ont.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....
York, Ont.....	2	.....	.....	2	2	.....	.....	2	.....	.....
Totals of Ontario.....	9	1	1	7	7	.....	.....	4	2	1
New Westminster, B.C.....	1	.....	.....	1	1	.....	.....	1	.....	.....
Totals of Canada.....	74	26	1	44	43	1	.....	21	15	1

* 3 Nolle prosequi.

TABLEAU I. OUTRAGES CONTRE LA PERSONNE.												CLASSE I.		
SENTENCE.						OCCUPATIONS.						CIVIL CONDITIONS.		
PENITENTIARY. PÉNITENCIER.			D'th. —	Com- mit- ted to Refor- ma- to- ries —	Other Senten- ces. —							ÉTATS CIVILS.		
Two years and under five.	Five years and over.	Life.				Agri- cultural.	Com- mer- cial.	Do- mestic	In- dus- trial.	Pro- fes- sional	La- borers	Mar- ried.	Wi- dowed	Single
D'un ans et moins de cinq.	Cinq ans et plus.	A vie	De mort	En- voyés à la prison de Réfor- me.	Autres Senten- ces.	—	—	—	—	—	—	—	—	—
						Agri- cul- teurs.	Com- mer- çants.	Servi- teurs.	In- dus- triels.	Pro- fes- sions libé- rales.	Jour- na- liers.	Mar- riés.	En- veu- vage.	Céli- ba- taires.
DESERTION D'ENFANTS.														
					1a.				1					1
						1			1			1		1
					1a.	1			2			1		3
					1a.	1			2			1		3
BIGAMIE.														
					1a.				1			1		
											1	1		
											1	2		
					1a.		1					1		
												1		
1											1	1		
					1a.			1				1		
					1a.				1			1		
												1		
1					4a.		1	1	2		4	11		
1					4a.		1	1	2		4	11		
VOIES DE FAIT SUR FEMMES.														
							3		1		2	4		2
1				1	5a.	1	6		10		9	18	1	10
1				1	5a.	1	6		10		10	19	1	10
											1			1
							1				1	1		1
							1					1		1
											1			1
							1				1			2
							3				4	2		5
									1					1
1				1	5a.	1	12		12		16	25	1	18

a Sentence deferred.—Sentence remise.

TABLE I.			OFFENCES AGAINST THE PERSON.										CLASS I.		
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.										USE OF LIQUORS. — USAGE DE LIQUEURS	
	Un- able to read or write. — Inca- pable de lire ou d'é- crire.	Ele- men- tary. — Elé- men- taire.	Super- rior. — Supé- rieure	Under 16 years.	16 years and under 21.	21 years and under 40.	40 years and over.	Not given.	Mo- de- rate		Im- mo- de- rate				
				Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non- donné.							
				M. F.	M. F.	M. F.	M. F.	M. F.					M. F.		
				H. F.	H. F.	H. F.	H. F.	H. F.	H. F.			Mo- dé- ré	Im- mo- dé- ré		
DESERTING CHILD.															
Halton, Ont.	1						1					1			
Middlesex, Ont.		1					1					1			
Wellington, Ont.		2				1		1				2			
Totaux d'Ontario.	1	3				1		2	1			4			
Totaux du Canada.	1	3				1		2	1			4			
BIGAMY.															
Brant, Ont.		1					1					1			
Halton, Ont.		1					1								
Hastings, Ont.		1					1				1	2			
Kent, Ont.	1							1				1			
Middlesex, Ont.		1							1			1			
Norfolk, Ont.															
Northumberland et Durham, O.	1						1					1			
Renfrew, Ont.	1						1						1		
Simcoe, Ont.		1						1				1			
Wentworth, Ont.		1					1					1			
York, Ont.		1							1			1			
Totaux d'Ontario.	3	7					6	2	1	1		8	2		
Totaux du Canada.	3	7					6	2	1	1		8	2		
ASSAULT ON FEMALES.															
Queen's, I. du P.-E.		4	2				3		3				6		
Montréal, Qué.	16	13		1	3		18	1	6			4	25		
Trois-Rivières.	1						1						1		
Totaux de Québec.	17	13		1	3		19	1	6			4	26		
Algoma, Ont.		1							1			1			
Carleton, Ont.		1					1					1			
Hastings, Ont.		1					1						1		
Kent, Ont.		1							1				1		
Middlesex, Ont.															
Simcoe, Ont.		1							1				1		
Wentworth, Ont.															
York, Ont.		1	1				2					2			
Totaux d'Ontario.		6	1				4		3			4	3		
New-Westminster, Col.-B.		1							1			1			
Totaux du Canada.	17	24	3	1	3		26	1	13			9	35		

TABLEAU I. OUTRAGES CONTRE LA PERSONNE. CLASSE I.														
BIRTH PLACES. LIEUX DE NAISSANCE.							RELIGIONS.						RESI- DENCE.	
BRITISH ISLES. — ILES BRITANNIQUES.			Canada.	United States	Other Foreign Coun- tries.	Other Bri- tish Pos- ses- sions.	Bap- tists.	R. Ca- tho- lics.	Ch. of Eng- land.	Me- tho- dists.	Pres- byte- rians.	Pro- tes- tants	Other Deno- mina- tions.	Cities and Towns—Villes. Rural Districts—Districts ruraux.
Eng- land and Wales	Ire- land.	Scot- land.												
Angle- terre et Galles.	Ir- lande.	Ecos- se.		Etats- Unis.	Aut- res pays étran- gers.	Autr's posses- sions Bri- tanni- ques.	Bap- tistes.	Ca- tho- liques.	Eglise d'An- gle- terre.	Me- tho- dis- tes.	Pres- byté- riens.	Autr's con- fes- sions.		
DÉSERTION D'ENFANTS.														
			1						1					1
			1							1				1
			2									2		2
			4						1	1		2		3
			4						1	1		2		3
BIGAMIE.														
			1										1	1
			1							1				1
			1									1		1
			1						1					1
			1							1				1
			1						1					1
			1						1					1
			1						1					1
			10					1	3	2	1	1	2	6
			10					1	3	2	1	1	2	6
VOIES DE FAIT SUR FEMMES.														
			6					5				1		6
3	1		23		2			24	2			3		29
			1					1						1
3	1		24		2			25	2			3		30
				1						1				1
	1				1			1						1
			1								1			1
			1							1				1
1			1						1		1			2
1	1		3	1	1			2	1	2	2			5
				1								1		1
4	2		33	2	3			32	3	2	2	5		42

TABLE I.

OFFENCES AGAINST THE PERSON.

CLASS I.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDICIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Persons charged. — Personnes accu- sées.	Ac- quit- ted. — Ac- quit- tés.	De- tained for Lu- nacy. — Em- pri- son- nés pour cause de folie.	CONVICTIONS. — CONDAMNATIONS.				SENTENCE.		
								COMMITTED TO GAOL — EMPRISONNÉS.		
				Total.	Con- victed 1st.	Con- victed 2nd.	Reite- rated.	With the option of a fine.	No OPTION.	
					— Con- dam- nés une fois.	— Con- dam- nés deux fois.	— Plus de 2 réci- des.	— Sur option entre la pri- son ou l'a- m ^{nde}	— SANS OPTION.	— One year and over. — Un an et plus.
ABDUCTION.										
Grey, Ont.	1			1	1				1	
Huron, Ont.	1			1	1					
Lincoln, Ont.	1	1								
Northumberland & Durham, O..	1	1								
Wentworth, Ont.	2	1		1	1					1
York, Ont.	1	1								
Totals of Ontario.	7	4		3	3				1	1
Totals of Canada.	7	4		3	3				1	1
SEDUCTION.										
Cumberland, N.S.	1	1								
Montreal, Que.	1	1								
Algoma, Ont.	*3	1								
Bruce, Ont.	1	1								
Grey, Ont.	1			1	1				1	
Haldimand, Ont.	2	1		1	1				1	
Northumberland & Durham, O..	1	1								
Victoria, Ont.	1	1								
Waterloo, Ont.	1	1								
Wentworth, Ont.	1			1		1				1
York, Ont.	5	3		2	2					
Totals of Ontario.	16	9		5	4	1			2	1
Totals of Canada.	18	11		5	4	1			2	1
LIBEL.										
Montreal, Qué.	2	1		1	1					
Victoria, Ont.	2	2								
Manitoba, Eastern.	2	2								
Totals of Canada.	6	5		1	1					

* 2 Nolle prosequi

TABLEAU I.													OUTRAGES CONTRE LA PERSONNE.													CLASSE I.		
SENTENCE.													OCCUPATIONS.													CIVIL CONDITIONS.		
PENITENTIARY.																										ETATS CIVILS.		
PÉNITENCIER.																												
Two years and under five.	Five years and over.	Life.	D'th.	Committed to Reformatories.	Other Sentences.	Agricultural.	Commercial.	Domestic.	Industrial.	Professional.	Labourers.	Married.	Widowed.	Single.														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—														
Deux ans et moins de cinq.	Cinq ans et plus.	A vie.	De mort.	Envoyés à la prison de Réforme.	Autres Sentences.	Agriculteurs.	Commerçants.	Serviteurs.	Industriels.	Professions libérales.	Journaliers.	Mariés.	En veuvage.	Célibataires.														
ENLÈVEMENT.																												
					1a.		1		1				1	1														
									1			1																
					1a.		1		2			1	1	1														
					1a.		1		2			1	1	1														
SÉDUCTION.																												
									1			1																
									1			1																
					2a.		2		1			1		2														
					2a.		2		3			3		2														
					2a.		2		3			3		2														
LIBELLE.																												
					1a.					1		1																
					1a.					1		1																

TABLE I.

OFFENCES AGAINST THE PERSON.

CLASS I.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.										USE OF LIQUORS. — USAGE DE LIQUEURS	
	Un- able to read or write.	Ele- men- tary.	Super- rior.	Under 16 years.	16 years and under 21.	21 years and under 40.	40 years and over.	Not given.	Mo- de- rate	Im- mo- de- rate					
				Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non- donné.							
				M. F	M. F.	M. F.	M. F.	M. F.			M. F.				
Inca- pable de lire ou d'é- crire.	Elé- men- taire.	Supé- rieure	M. F	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	Mo- dé- ré	Im- mo- dé- ré				

ABDUCTION.

Grey, Ont.	1				1								1	
Huron, Ont.	1												1	
Lincoln, Ont.														
Northumberl'd et Durham, O.														
Wentworth, Ont.	1					1								1
York, Ont.														
Totaux d'Ontario.	3				1	1		1					2	1
Totaux du Canada.	3				1	1		1					2	1

SEDUCTION.

Cumberland, N.-E.														
Montréal Qué.														
Algoma, Ont.														
Bruce, Ont.														
Grey, Ont.	1					1							1	
Haldimand, Ont.	1													1
Northumberl'd et Durham, O.														
Victoria, Ont.														
Waterloo, Ont.														
Wentworth, Ont.	1					1								1
York, Ont.	2				2								2	
Totaux d'Ontario.	5				2	2		1					3	2
Totaux du Canada.	5				2	2		1					3	2

LIBEL.

Montréal, Qué.			1			1								1
Victoria, Ont.														
Manitoba, Est.														
Totaux du Canada.			1			1								1

TABLE I.

OFFENCES AGAINST THE PERSON.

CLASS I.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDICIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Persons charged.	Ac- quit- ted.	De- tained for Lu- nacy.	CONVICTIONS. — CONDEMNATIONS.				SENTENCE.		
				Total.	Con- victed 1st.	Con- victed 2nd.	Reite- rated.	COMMITTED TO GAOL — EMPRISONNÉS.		
								With the option of a fine.	No OPTION.	
									SANS OPTION.	—
	Per- sonnes accu- sées.	Ac- quit- tés.	Em- pri- son- nés pour cause de folie.		— Con- dam- nés une fois.	— Con- dam- nés deux fois.	— Plus de 2 récidi- ves.	— Sur option entre la pri- son ou l'a- mende	Un- der one year. — Moins d'un an.	One year and over. — Un an et plus.
AGGRAVATED ASSAULT AND INFLECTING BODILY HARM.										
Halifax, N.S.	2	1	..	1	1	..	..	..	1	..
King's, N.S.	1	..	..	1	..	1	..	..	..	..
Richmond, N.S.	4	4	..	..	..	..	..	..	..	..
Totals of Nova Scotia.....	7	5	..	2	1	1	..	..	1	..
St. John, N.B.	3	..	..	3	3	..	..	1	2	..
Sunbury, N.B.	1	1	..	..	..	..	..	..	..	..
Westmoreland, N.B.	*2	..	..	1	1	..	..	..	..	..
Totals of New Brunswick..	6	1	..	4	4	..	..	1	2	..
Beauharnois, Que.	2	..	..	2	1	..	1	1	..	..
Bonaventure, Que.	1	..	..	1	1	..	..	..	1	..
Chicoutimi, Que.	1	..	..	1	1	..	..	..	1	..
Gaspé, Que.	3	..	..	3	3	..	..	1	2	..
Montreal, Que.	80	27	..	53	49	3	1	39	7	..
Quebec, Que.	4	..	..	4	4	..	..	..	2	1
Richelieu, Que.	2	1	..	1	..	1	..	..	1	..
St. Francis, Que.	4	..	..	4	4	..	..	3	+1	..
St. Hyacinthe, Que.	1	..	..	1	1	..	..	1	..	..
Terrebonne, Que.	2	1	..	1	1	..	..	1	..	..
Three Rivers, Que.	\$8	3	..	3	2	1	..	1	1	1
Totals of Quebec.....	108	32	..	74	67	5	2	47	16	2
Brant, Ont.	8	5	..	3	3	..	..	2	1	..
Bruce, Ont.	1	..	..	1	1	..	..	..	1	..
Carleton, Ont.	2	1	..	1	1	..	..	..	1	..
Dufferin, Ont.	1	..	..	1	1	..	..	..	1	..
Elgin, Ont.	1	..	..	1	1	..	..	..	..	1
Essex, Ont.	5	3	..	2	2	..	..	..	2	..
Frontenac, Ont.	1	..	..	1	1	..	..	1	..	..
Haldimand, Ont.	1	..	..	1	1	..	..	..	1	..
Halton, Ont.	3	3	..	..	..	..	..	..	..	..
Hastings, Ont.	1	..	..	1	1	..	..	..	1	..
Huron, Ont.	7	6	..	1	1	..	..	..	1	..
Kent, Ont.	*8	3	..	4	4	..	..	..	2	..
Lambton, Ont.	1	..	..	1	1	..	..	..	..	..
Lanark, Ont.	1	..	..	1	1	..	..	..	..	..
Leeds and Grenville, Ont.	1	1	..	..	..	..	..	..	..	..
Lincoln, Ont.	9	7	..	2	1	..	1	..	2	..
Middlesex, Ont.	6	1	..	5	5	..	..	5	..	..
Ontario, Ont.	5	2	..	3	2	..	1	..	2	..
Perth, Ont.	1	..	..	1	1	..	..	..	..	..
Peterborough, Ont.	1	..	..	1	1	..	..	..	1	..

* 1 Left the country.
† 1 A laissé le pays.

+ 1 Both gaol and fined.
(La prison et l'amende.

+ 1 jury disagreed.
* 1 le juré ne s'est pas accordé.

\$2 nolle prosequi.

TABLEAU I.												OUTRAGES CONTRE LA PERSONNE.						CLASSE I.		
SENTENCE.						OCCUPATIONS.						CIVIL CONDITIONS.								
PENITENTIARY. — PÉNITENCIER.			D'th. — De mort	Com- mit- ted to Refor- ma- tories. — En- voyés à la prison de Réfor- me.	Other Senten- ces. — Autres Senten- ces.	Agricultural. — Agriculteurs.	Com- mer- cial. — Com- merçants.	Domestic — — Servi- teurs.	Indus- trial. — — Indus- triels.	Pro- fes- sional — — Pro- fes- sions libé- rales.	La- borers — — Jour- na- liers.	Mar- ried. — — Mariés.	Wi- dowed — — En- ven- vage.	Single — — Céli- bataires.						
Two years and un- der five. — Deux ans et m'ns de cinq.	Five years and over. — Cinq ans et plus.	Life. — A vie																		
VOIES DE FAIT GRAVES ET LÉSIONS CORPORELLES.																				
1										1	1			1						
1										1	1			2						
														3						
1											1	1								
1											1	1		3						
1						1					1	2		1						
								1			1	3								
				1	6a.	2	14	3	5	5	11	33	3	17						
					1a.				1		3	2		2						
							1				3	1		2						
											1	1		1						
									3			2		1						
1				1	7a.	4	15	4	10	6	20	47	3	24						
					1a.						3	2		1						
											1	1								
						1			1		1			1						
											1	1								
							1					1								
						1					1			1						
1	1				1a.	1					2	1		4						
					1b.				1		1	1								
									1		1	2								
					1b.				1		3	1		4						
	1										2	3								
											1			1						
											1	1								

a { Sentence deferred.
Sentence remise.

b { Bound to keep the peace.
Tenus de garder la paix.

TABLE I.

OFFENCES AGAINST THE PERSON.

CLASS I.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.								USE OF LIQUORS. — USAGE DE LIQUEURS	
	Un- able to read or write.	Ele- men- tary.	Supe- rior.	Under 16 years. —	16 years and under 21. —	21 years and under 40. —	40 years and over. —	Not given. —	Mo- de- rate	Im- mo- de- rate			
				Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non- donné.					
				M. F	M. F.	M. F.	M. F.	M. F.			M. F.		
	Inca- pable de lire ou d'é- crire.	Elé- men- taire.	Supé- rieure	— — —	— — —	— — —	— — —	— — —	Mo- dé- ré	Im- mo- dé- ré			
				H. F.	H. F.	H. F.	H. F.	H. F.					
AGGRAVATED ASSAULT AND INFLECTING BODILY HARM.													
Halifax, N.-E.		1				1			1	1			
King's, N.-E.		1						1		1			
Richmond, N.-E.													
Totaux de la N.-Ecosse.		2				1		1	1	1			
St. John, N.-B.	1	2				1	1	1	1	2			
Sunbury, N.-B.													
Westmoreland, N.-B.		1				1			1				
Totaux du N.-Brunswick.	1	3				2	1	1	2	2			
Beauharnois, Qué.		1					1	1		1			
Bonaventure, Qué.	1								1				
Chicoutimi, Qué.	1							1		1			
Gaspé, Qué.	3							2	1	3			
Montréal, Qué.	21	29	3	1	2	38	5	5	1	8	45		
Québec, Qué.	1	3				3		1		4			
Richelieu, Qué.	1					1					1		
St. François, Qué.	1	3				4				2	2		
St. Hyacinthe, Qué.		1				1					1		
Terrebonne, Qué.		1							1	1			
Trois-Rivières, Qué.	1	2				2		1			3		
Totaux de Québec.	30	40	3	1	2	50	5	8	1	6	19	54	
Brant, Ont.	1	2				2			1	3			
Bruce, Ont.		1						1		1			
Carleton, Ont.	1					1					1		
Dufferin, Ont.		1			1					1			
Elgin, Ont.		1				1				1			
Essex, Ont.		1				1			1		1		
Frontenac, Ont.			1					1					
Haldimand, Ont.									1				
Halton, Ont.													
Hastings, Ont.		1				1				1			
Huron, Ont.		1			1						1		
Kent, Ont.		4			1	3				3	1		
Lambton, Ont.		1						1		1			
Lanark, Ont.		1				1				1			
Leeds et Grenville, Ont.													
Lincoln, Ont.		2			1			1			2		
Middlesex, Ont.		5			2	3				4	1		
Ontario, Ont.		3				1		2			3		
Perth, Ont.		1			1					1	1		
Peterborough, Ont.		1				1				1			

CLASSE I.

VOIES DE FAIT GRAVES ET LÉSIONS CORPORELLES.

[illegible]

TABLE I.

OFFENCES AGAINST THE PERSON.

CLASS I.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDICIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Persons charged. — Personnes accu- sées.	Ac- quit- ted. — Ac- quit- tés.	De- tained for Lu- nacy. — Em- pri- son- nés pour cause de folie.	CONVICTIONS. — CONDAMNATIONS.				SENTENCE.		
				Total.	Con- victed 1st. — Con- dam- nés une fois.	Con- victed 2nd. — Con- dam- nés deux fois.	Reite- rated. — Plus de 2 rédi- ves.	COMMITTED TO GAOL — EMPRISONNÉS.		
								With the option of a fine. Sur option entre la pri- son ou l'a- m'nde	No OPTION. — SANS OPTION	No OPTION. — SANS OPTION
								Under one year. — Moins d'un an.	One year and over. — Un an et plus.	
AGGRAVATED ASSAULT AND INFLECTING BODILY HARM— <i>Concluded.</i>										
Prince Edward, Ont.	1			1	1				1	
Renfrew, Ont.	3			3	3			1		2
Simcoe, Ont.	4	3		1	1				1	
Stormont, D'das & Glengarry, O.	2	1		1	1					
Thunder Bay, Ont.	1	1								
Victoria, Ont.	10	4		6	5	1		3	3	
Wellington, Ont.	3			3	2		1		1	
Wentworth, Ont.	22	9		13	13			8	5	
York, Ont.	53	20		33	32	1		11	13	
Totals of Ontario.	163	70		92	87	2	3	31	39	3
Manitoba, Eastern.	4	1		3	3					
Clinton, B.C.	1			1	1					
New Westminster, B.C.	8			8	8			5	2	1
Victoria, B.C.	3			3	3			2	1	
Totals of British Columbia.	12			12	12			7	3	1
Alberta, Southern N.-W.T.	1	1								
Totals of Canada.	301	110		187	174	8	5	86	61	6
ASSAULT ON AND OBSTRUCTING PEACE OFFICER.										
Queen's, P.E.I.	1			1	1			1		
Antigonish, N.S.	2			2	2			1		1
Montreal, Que.	175	16		159	157	2		122	8	
Richelieu, Que.	1			1			1	1		
St. Francis, Que.	5			5	5			3		
Three Rivers, Que.	1	1								
Totals of Quebec.	182	17		165	162	2	1	126	8	
Algoma, Ont.	3			3	3			2	1	
Brant, Ont.	1			1	1				1	
Carleton, Ont.	1			1	1				1	
Elgin, Ont.	3	3								
Essex, Ont.	2	1		1	1				1	
Grey, Ont.	4			4	4				4	

TABLEAU I.										OUTRAGES CONTRE LA PERSONNE.										CLASSE I.		
SENTENCE.										OCCUPATIONS.										CIVIL CONDITIONS.		
PENITENTIARY. — PÉNITENCIER.			D'th. — De mort	Com- mit- ted to Refor- ma- tories — En- voyés à la prison de Réfor- me.	Other Senten- ces. — Autres Senten- ces.	Agri- cul- tural. — Agri- cul- teurs.	Com- mer- cial. — Com- mer- çants.	Do- mestic — Servi- teurs.	Ind- us- trial. — Ind- us- triels.	Pro- fes- sional — Pro- fes- sions libé- rales.	La- borers — Jour- na- liers.	Mar- ried. — Mar- riés.	Wi- dowed — En- veu- vage.	Single — Céli- ba- taires.								
Two years and un- der five.	Five years and over.	Life.																				
D'un ans et moins de cinq.	Cinq ans et plus.	A vie																				
VOIES DE FAIT GRAVES ET LÉSIONS CORPORELLES—Fin.																						
						1	1		1		1	1										
				1			1				1	3										
												1		1								
						4	1					1		1								
					2a.						1			3								
								2	4		7	7		6								
1					8a.	1			1		27	17	2	14								
2	2			1	12a, 2b.	9	4	3	11		55	45	2	39								
					3a.						2	3										
1						1			2		1			1								
							1		2		4	2		5								
									2					3								
1						1	1		4		5	2		9								
6	2			2	22a, 2b.	14	20	7	25	7	84	98	5	77								
VOIES DE FAIT ET FAISANT OBSTACLE A UN OFFICIER DE LA PAIX.																						
												1										
									1		1	1		1								
					29a.		24	2	45	2	76	57	2	100								
					2a.	1		1	1		1	1	1	1								
											2			3								
					31a.	1	24	3	46	2	79	58	3	104								
									2					2								
											1			1								
											1			1								
							1							1								
											4			4								

a { Sentence deferred.
Sentence remise.

b { Bound to keep the peace.
Tenus de garder la paix.

TABLE I.		OFFENCES AGAINST THE PERSON.												CLASS I.	
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.										USE OF LIQUORS. — USAGE DE LIQUEURS	
	Un- able to read or write. — Inca- pable de lire ou d'é- crire.	Ele- men- tary. — Élé- men- taire.	Super- rior. — Supé- rieure	Under 16 years. — Moins de 16 ans.	16 years and under 21. — 16 ans et moins de 21.	21 years and under 40. — 21 ans et moins de 40.	40 years and over. — 40 ans et plus.	Not given. — Non- donné.			Mo- de- rate	Im- mo- de- rate			
				M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Mo- dé- ré	Im- mo- dé- ré
				H.	F.	H.	F.	H.	F.	H.	F.	H.	F.		
AGGRAVATED ASSAULT AND INFLECTING BODILY HARM— <i>Concluded.</i>															
Prince Edouard, Ont.		1						1					1		
Renfrew, Ont.	1	2				2		1					2	1	
Simcoe, Ont.		1				1							1		
Storm't, D'das et Gleng'ry, O.		1		1									1		
Thunder Bay, Ont.															
Victoria, Ont.		2			1	1				4			1	1	
Wellington, Ont.		3		2		1							2	1	
Wentworth, Ont.		13			1	10		2					7	6	
York, Ont.	4	29			6	1	15	2	9				22	11	
Totaux d'Ontario	7	78	1	3	15	1	45	2	19		7		53	32	
Manitoba, Est.		3							2	1			3		
Clinton, Col.-B.		1		1									1		
New Westminster, Col.-B.		7				1		7					6	1	
Victoria, Col.-B.	1	2				2		1					2	1	
Totaux de la Col.-Britann.	1	10		1		3		8					9	2	
Alberta, Sud, T. du N.-O.															
Totaux du Canada	39	136	4	5	17	1	101	7	38	3	14	1	87	91	
ASSAULT ON AND OBSTRUCTING PEACE OFFICER.															
Queen's, I. du P.-E.		1							1				1		
Antigonish, N.-E.		2				1		1					1	1	
Montréal, Qué.	20	138	1	1	18	116	4	14	1	4	1	12	147		
Richelieu, Qué.	1					1							1		
St. François, Qué.		5				3		1	1			5			
Trois-Rivières, Qué.															
Totaux de Québec	21	143	1	1	18	120	4	15	2	4	1	17	148		
Algoma, Ont.		2						2		1		2			
Brant, Ont.	1				1							1			
Carleton, Ont.		1			1							1			
Elgin, Ont.															
Essex, Ont.		1				1							1		
Grey, Ont.		4			1	3							4		

TABLE I.		OFFENCES AGAINST THE PERSON.						CLASS I.		
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDICIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Persons charged. — Per- sonnes accusées	Ac- quit- ted. — Ac- quit- tés.	De- tained for Lu- nacy. — Em- pri- son- nés pour cause de folie.	CONVICTIONS. CONDAMNATIONS.				SENTENCE.		
				Total.	Con- victed 1st. — Con- dam- nés une fois.	Con- victed 2nd. — Con- dam- nés deux fois.	Reite- rated. — Plus de 2 rédi- ves.	COMMITTED TO GAOL — EMPRISONNÉS.		
								With the option of a fine. — Sur option entre la pri- son ou l'a- me'de	NO OPTION. — SANS OPTION	
									Un- der one year. — Moins d'un an.	One year and over. — Un an et plus.
ASSAULT ON AND OBSTRUCTING PEACE OFFICER— <i>Concluded.</i>										
Haldimand, Ont.....	1	1								
Hastings, Ont.....	1			1	1				1	
Huron, Ont.....	1			1		1			1	
Kent, Ont.....	2			2	2			2		
Lambton, Ont.....	2	1		1	1					
Lincoln, Ont.....	1			1	1				1	
Middlesex, Ont.....	3			3	3			2	1	
Northumberland, & Durham, O.	2	1		1	1			1		
Ontario, Ont.....	1			1	1					
Oxford, Ont.....	2	1		1			1		1	
Peterborough, Ont.....	2			2	2				2	
Prince Edward, Ont.....	1			1	1					
Stormont, D'das & Glengarry, O.	1			1			1		1	
Welland, Ont.....	4	1		3	1		2			2
Wellington, Ont.....	1			1	1			1		
Wentworth, Ont.....	7	2		5	5			3	1	
York, Ont.....	35	15		20	20			13	6	
Totals of Ontario.....	81	26		55	50	1	4	24	23	2
Manitoba, Eastern.....	4			4	4			3	1	
Manitoba, Western.....	2			2	2			2		
Totals of Manitoba.....	6			6	6			5	1	
Cariboo, B.C.....	1			1	1				1	
Clinton, B.C.....	2			2	1	1			1	
New Westminster, B.C.....	3			3	3			2	1	
Victoria, B.C.....	8			8	8			8		
Totals of British Columbia.....	14			14	13	1		10	3	
Alberta, Southern, N.W.T.....	1			1	1				1	
Totals of Canada.....	287	43		244	235	4	5	167	36	3
ASSAULT AND BATTERY.										
Queen's, P.E.I.....	3			3	3			1	2	
Antigonish, N.S.....	1		1							
Cumberland, N.S.....	2	2								
Halifax, N.S.....	*5	1		3	3				3	
Lunenburg, N.S.....	1			1	1			1		

* 1 jury disagreed—1 le juré ne s'est pas accordé.

TABLEAU I. OUTRAGES CONTRE LA PERSONNE.												CLASSE I.		
SENTENCE.						OCCUPATIONS.						CIVIL CONDITIONS.		
PENITENTIARY. — PÉNITENCIER.			D'th. — De mort	Com- mit- ted to Refor- ma- to- ries	Other Senten- ces.							ÉTATS CIVILS.		
Two years and un- der five.	Five years and over.	Life.		—	—	Agri- cul- tural.	Com- mer- cial.	Do- mestic	In- dus- trial.	Pro- fes- sional	La- borers	Mar- ried.	Wi- dowed	Single
D'ux ans et m'ns de cinq.	Cinq ans et plus.	A vie.		En- voyés à la prison de Ré- forme.	Autres Senten- ces.	—	—	—	—	—	—	—	—	—
						Agri- cul- teurs.	Com- mer- çants.	Servi- teurs.	In- dus- triels.	Pro- fes- sions libé- rales.	Jour- na- liers.	Ma- riés.	En- veu- rage.	Céli- ba- taires.
VOIES DE FAIT ET FAISANT OBSTACLE À UN OFFICIER DE LA PAIX—Fin.														
						1						1		
						1						1		
					1a.		1		1		1			2
									1		1	1		1
					1a.	1			1		1	1		1
					1a.	1					2	1		1
					1a.						2	1		2
					1a.	1			4		1	3		2
					1a.	1					16	4		16
					6a.	6	3		9		30	16		36
						2	1		1		1	2		2
						2	1		1		1	4		2
1									1		1			1
							3				2			2
											1			8
1							3		1		5			13
												1		
1					37a.	9	31	3	58	2	116	81	3	156
AGRESSION AVEC VOIES DE FAIT.														
									3					3
							2				1			3
						1						1		

a Sentence deferred.—Sentence remise.

TABLE I.			OFFENCES AGAINST THE PERSON.												CLASS I.	
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.										USE OF LIQUORS. — USAGE DE LIQUEURS		
	Un- able to read or write. — Inca- pable de lire ou d'é- crire.	Ele- men- tary. — Elé- men- taire.	Super- rior. — Supé- rieure	Under 16 years.	16 years and under 21.	21 years and under 40.	40 years and over.	Not given.	Mo- de- rate		Im- mo- déré					
				Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non- donné.	M. F.	M. F.	M. F.	M. F.				
				M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.				
ASSAULT ON AND OBSTRUCTING PEACE OFFICER— <i>Concluded.</i>																
Haldimand, Ont.														1		
Hastings, Ont.	1					1									1	
Huron, Ont.	1					1									1	
Kent, Ont.	2					2									2	
Lambton, Ont.	1				1									1		
Lincoln, Ont.	1						1								1	
Middlesex, Ont.	2					1	1	1							2	
Northumberl'd et Durham, O.	1					1								1		
Ontario, Ont.	1								1					1		
Oxford, Ont.	1					1									1	
Peterborough, Ont.	2				1			1						1	1	
Prince-Edouard, Ont.	1							1						1		
Storm't, D'das et Gleng'ry, O.	1							1						1		
Welland, Ont.	2					2			1						2	
Wellington, Ont.	1					1								1		
Wentworth, Ont.	5					5								2	3	
York, Ont.	1	18	1		2	14	2	2						11	9	
Totaux d'Ontario.	2	49	1		7	33	2	9		4				25	27	
Manitoba, Est.	1	3				3		1						2	2	
Manitoba, Ouest.		2				1		1						1	1	
Totaux de Manitoba.	1	5				4		2						3	3	
Cariboo, Col.-B.									1					1		
Clinton, Col.-B.		2				2								1	1	
New-Westminster, Col.-B.		2				1		1		1				2		
Victoria, Col.-B.	8					8									8	
Totaux de la Col.-Britann.	8	4				11		1		2				4	9	
Alberta, Sud, T. du N.-O.								1								
Totaux du Canada.	32	204	2	1	25	169	6	29	3	10	1	51	188			
ASSAULT AND BATTERY.																
Queen's, I. du P.-E.		3			1	2								3		
Antigonish, N.-E.																
Cumberland, N.-E.																
Halifax, N.-E.		3				3								3		
Lunenburg, N.-E.		1						1						1		

TABLEAU I.										OUTRAGES CONTRE LA PERSONNE.						CLASSE I.			
BIRTH PLACES. — LIEUX DE NAISSANCE.										RELIGIONS.						RESI- DENCE.			
BRITISH ISLES. — ILES BRITANNIQUES.			Canada.	United States — Etats-Unis.	Other Foreign Countries. — Autres pays étrangers.	Other British Possessions. — Autres possessions Britanniques.	Bap- tists. — Baptistes.	R. Ca- tho- lics. — Catholiques.	Ch. of Eng- land. — Eglise d'Angle- terre.	Metho- dists — Méthodistes.	Pres- byte- rians. — Presbytériens.	Pro- tes- tants — Autr's con- fessions.	Other Deno- mina- tions. — Autr's con- fessions.	Cities and Towns — Villes.	Districts Rural Districts — Districts ruraux.				
Eng- land and Wales — Angle- terre et Galles	Ire- land. — Irlande.	Scot- land. — Ecos- se.																	
VOIES DE FAIT ET FAISANT OBSTACLE À UN OFFICIER DE LA PAIX—Fin.																			
.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1		
.....	2	.....	.....	.....	1	.....	.....	2	.....	.....	.....	2	1		
1	1	.....	.....	.....	.....	1	1	.....	.....	.....	.....	1	.....			
.....	1	1	.....	.....	.....	1	1	.....	.....	.....	.....	2	1		
.....	1	.....	1	.....	.....	.....	.....	1	.....	.....	1	.....	.....	1	.....			
.....	1	.....	1	.....	.....	.....	.....	1	1	.....	.....	.....	.....	1	.....			
.....	1	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	2	1		
.....	1	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....
4	2	1	5	.....	.....	.....	2	2	.....	1	.....	.....	.....	5	.....			
.....	13	.....	.....	.....	11	6	1	2	.....	.....	.....	19	1		
5	4	1	37	5	.....	.....	1	21	11	9	6	4	.....	37	15	
1	3	.....	.....	.....	.....	.....	1	1	1	.....	1	4	.....			
.....	2	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	2		
1	5	.....	.....	.....	.....	.....	1	1	1	2	1	4	2		
.....	1	.....	.....	.....	.....	.....	.....	.....
.....	1	1	.....	.....	.....	2	.....	.....	.....	.....	.....	1	1		
.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	2	.....			
.....	7	1	.....	.....	.....	.....	.....	.....	.....	.....	8	.....	8		
.....	1	10	2	.....	.....	.....	3	.....	.....	.....	2	8	3	10	
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1		
11	24	3	187	8	5	2	1	169	12	10	7	28	13	202	38				
AGRESSION AVEC VOIES DE FAIT.																			
.....	3	.....	.....	.....	.....	2	.....	.....	.....	1	.....	2	1		
.....				
.....	3	.....	.....	.....	1	.....	.....	2	.....	.....	2	1			
.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1		

TABLE I.

OFFENCES AGAINST THE PERSON.

CLASS I.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDICIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Persons charged — Per- sonnes accu- sées.	Ac- quit- ted. — Ac- quit- tés.	De- tained for Lu- nacy. — Em- pri- son- nés pour cause de folie.	CONVICTIONS. — CONDMNATIONS.				SENTENCE.		
								COMMITTED TO GOAL		
								EMPRISONNÉS.		
				Total.	Con- victed 1st. — Con- dam- nés une fois.	Con- victed 2nd. — Con- dam- nés deux fois.	Reite- rated. — Plus de 2 réci- dives.	With the option of a fine. — Sur option entre la pri- son ou l'a- m'nde	No OPTION. — SANS OPTION	One year and over. — Un an et plus.
								Under one year. — Moins d'un an.		
ASSAULT AND BATTERY—Continued.										
Queen's, N.S.	1	1								
Richmond, N.S.	1			1	1			1		
Yarmouth, N.S.	1			1	1				1	
Totals of Nova Scotia.....	12	4	1	6	6			2	4	
Carleton, N.B.	1	1								
Madawaska, N.B.	2	1		1	1				1	
Northumberland, N.B.	11			11	11			11		
Restigouche, N.B.	2			2	2				2	
Westmoreland, N.B.	3	3								
Totals of New Brunswick..	19	5		14	14			11	3	
Bonaventure, Que.	1			1	1			1		
Iberville, Que.	1			1	1			1		
Kamouraska, Que.	1			1	1				1	
Montreal, Que.	5			5	5			4	1	
Quebec, Que.	6	5		1	1			1		
Richelieu, Que.	2			2	1	1			2	
St. Hyacinthe, Que.	4			4	4			1	3	
Terrebonne, Que.	12	5		7	7			7		
Totals of Quebec....	32	10		22	21	1		15	7	
Algoma, Ont.	3			3	3				3	
Brant, Ont.	4			4	4			3	1	
Bruce, Ont.	1			1	1				1	
Carleton, Ont.	4			4	3	1		2	*2	
Elgin, Ont.	3	1		2	2			1		
Essex, Ont.	8	3		5	5				4	
Grey, Ont.	3			3	3			1	2	
Haldimand, Ont.	4	2		2	2			1	1	
Halton, Ont.	3			3	3			2		
Hastings, Ont.	6			6	6			3	3	
Huron, Ont.	2			2	2			1	1	
Kent, Ont.	10	5		5	5			3	2	
Lambton, Ont.	3	2		1	1					
Lanark, Ont.	2			2	2			1		
Middlesex, Ont.	11	2		9	9			5	4	
Norfolk, Ont.	7	5		2	1	1			1	
Northumberland & Durham, Ont.	12	3		9	9			9		
Ontario, Ont.	†7			6	6			5		
Renfrew, Ont.	1			1	1				1	
Simcoe, Ont.	9	3		6	6			6		
Stormont, D'das & Glengarry, O.	1			1	1				1	

† 1 jury disagreed.

† 1 le juré ne s'est pas accordé.

* 1 both gaol and fine.

* 1 la prison et l'amende.

TABLEAU I.						OUTRAGES CONTRE LA PERSONNE.						CLASSE I.			
SENTENCE.						OCCUPATIONS.						CIVIL CONDITIONS.			
PENITENTIARY.			D'th.	Com-mitted to Re-forma-tories.	Other Senten-ces.	Agricultural.	Com-mercial.	Domestic.	Indus-trial.	Pro-fes-sional.	La-borers.	Mar-ried.	Wi-dowed.	Single.	
PÉNITENCIER.															
Two years and under five.	Five years and over.	Life.	—	—	—	—	—	—	—	—	—	—	—	—	
Deux ans et moins de cinq.	Cinq ans et plus.	A vie	De mort	En-voyés à la prison de Réfor-me.	Autres Senten-ces.	Agricul-teurs.	Com-mer-cants.	Servi-teurs.	Indus-triels.	Pro-fes-sions libé-rales.	Jour-na-liers.	Ma-riés.	En-veu-vage.	Céli-ba-taires.	
AGRESSION AVEC VOIES DE FAIT—Suite.															
								1	1			1		1	
						1	2	1	1		1	2		4	
						1								1	
						1	1		3	2	3	7		4	
											2			2	
						2	1		3	2	5	7		7	
						1						1			
											1			1	
							1		1		3	2		3	
						1			1			1			
									1		1	1		1	
						3	1		1		4	2		2	
											2	3		4	
						5	2		3		12	11		11	
						3					3	1		2	
											1	4			
											1			1	
							2		1		1	3		1	
				1a.		1	1		1		1	1		1	
				1a.		1		1	2		1	2		3	
						1		1			1	2		1	
						1			1			2			
				1a.							3	2		1	
						1	1				3	3		3	
						1				1		1		1	
						1		1	1		2		1	4	
				1a.							1			1	
				1a.					1		1	1		1	
								2			3	6		3	
				1a.							2	2			
									3		3	4		5	
				1b.		4	2					3		1	
											1			1	
							2		2		1	4		2	
											1	1			

TABLE I.

OFFENCES AGAINST THE PERSON.

CLASS I.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.								USE OF LIQUORS. — USAGE DE LIQUEURS	
	Un- able to read or write.	Ele- men- tary.	Super- rior.	Under 16 years. — Moins de 16 ans.	16 years and under 21. — 16 ans et moins de 21.	21 years and under 40. — 21 ans et moins de 40.	40 years and over. — 40 ans et plus.	Not given. — Non donné.			Mo- de- rate	Im- mo- de- rate	
	—	—	—										
	Inca- pable de lire ou d'é- crire.	Elé- men- taire.	Supé- rieure	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	Mo- déré	Im- modéré	

ASSAULT AND BATTERY—*Continued.*

Queen's N.-E.													
Richmond, N.-E.		1				1						1	
Yarmouth, N.-E.		1				1						1	
Totaux de la N.-Ecosse.		6				5		1				6	
Carleton, N.-B.						1						1	
Madawaska, N.-B.	1				1	6	1	3				1	
Northumberland, N.-B.					2								2
Restigouche, N.-B.													
Westmoreland, N.-B.													
Totaux du N.-Brunswick.	1				3	7	1	3				1	2
Bonaventure, Qué.	1							1				1	
Iberville, Qué.		1			1								1
Kamouraska, Qué.	1							1				1	
Montréal, Qué.		5				4		1					5
Québec, Qué.		1						1				1	
Richelieu, Qué.	1	1				2		1				1	1
St. Hyacinthe, Qué.	4										4		4
Terrebonne, Qué.	5	2									7		7
Totaux de Québec.	12	10			1	6		4			11	11	11
Algoma, Ont.	3					3							3
Brant, Ont.	2	2			1	3						4	
Bruce, Ont.		1				1						1	
Carleton, Ont.		4			1	1		1		1		3	1
Elgin, Ont.		2				2						2	
Essex, Ont.		5				2		3				2	3
Grey, Ont.		3				2		1				1	2
Haldimand, Ont.	2					1		1					2
Halton, Ont.	1	2				3						3	
Hastings, Ont.	2	4			2	2		1	1			4	2
Huron, Ont.		2				2						2	
Kent, Ont.	1	4			3	2						3	2
Lambton, Ont.		1			1							1	
Lanark, Ont.		1				2						1	1
Middlesex, Ont.	2	7			1	5		3				3	6
Norfolk, Ont.		2				2							2
Northumberland et Durham, O.		9			3	3		3				7	2
Ontario, Ont.		4				2				4		4	
Renfrew, Ont.		1				1							1
Simcoe, Ont.	3	3			1	3		2				5	1
Storm't, D'Indas et Gleng'ry, O.		1						1					1

TABLEAU I.												OUTRAGES CONTRE LA PERSONNE.												CLASSE I.	
BIRTH PLACES.												RELIGIONS.												RESI- DENCE.	
LIEUX DE NAISSANCE.																									
BRITISH ISLES.			Ca- nada.	Uni- ted States — Etats- Unis.	Other Fo- reign Coun- tries. — Autres pays étran- gers.	Other Bri- tish Pos- sessions. Autr's pos- sessions Bri- tanni- ques.	Bap- tists. — Bap- tistes.	R. Ca- tho- lics. — Catho- liques.	Ch. of Eng- land. — Eglise d'An- gle- terre.	Me- tho- dists — Mé- tho- dis- tes.	Pres- byte- rians. — Pres- byte- riens.	Pro- tes- tants — Autr's con- fes- sions.	Other Deno- mina- tions. — Autr's con- fes- sions.	Cities and Towns— Villes.	Rural Districts— Districts ruraux.										
ILES BRITANNIQUES.																									
Eng- land and Wales — Angle terre et Galles	Ire- land. — Ir- lande.	Scot- land. — Ecos- se.																							
AGRESSION AVEC VOIES DE FAIT—Suite.																									
			1								1				1										
			1						1					1											
			3	3			1	1	1		3			3	3										
			1					1							1										
			11					6				5		11											
			2					2						2											
			14					9				5		13	1										
			1					1							1										
			1					1						1											
			1					1																	
		1	4					5						5											
			1					1							1										
			2					2						1	1										
			4					4						4											
			7					6				1			7										
	1		21					21				1		11	11										
			3					3							3										
1			3				1		3						4										
			1											1											
		1	3					2	1	1		1		4											
			2									2		2											
			2	2				3						4	1										
2			1					1	2					2	1										
			2					1	1	1				2	1										
			3						1		2			1	1										
			6					2		3		1		2	5										
	1		1							1				1	2										
			5					5		2			1	4											
			1								1			1											
			2					1			1			1											
			4	1				5						1	1										
			4							2		1	1	8											
			2					2						2	1										
1			8					1						2	4										
			4					1	2			1			1										
			1					2							1										
			5					1	1	3				5	1										
	1								1						1										
	1														1										

TABLE I.

OFFENCES AGAINST THE PERSON—*Concluded.*

CLASS I.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDICIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Persons charged. — Per- sonnes accu- sées.	Ac- quit- ted. — Ac- quit- tés.	De- tained for Lu- nacy. — Em- pri- son- nés pour cause de folie.	CONVICTIONS. — CONDAMNATIONS.				SENTENCE.		
				Total.	Con- victed 1st.	Con- victed 2nd.	Reite- rated.	COMMITTED TO GAOL — EMPRISONNÉS.		
					— Con- dam- nés une fois.	— Con- dam- nés deux fois.	— Plus de 2 récidi- ves.	With the option of a fine. — Sur- option entre la pri- son ou l'a- m'nde	NO OPTION. — SANS OPTION	
									Un- der one year. — Moins d'un an.	One year and over. — Un an et plus.

ASSAULT AND BATTERY—*Concluded.*

Victoria, Ont.	2			2	2				1	
Wellington, Ont.	4	2		2	2			1		
Wentworth, Ont.	3			3			3		3	
York, Ont.	16	3		13	13			8	1	
Totals of Ontario.	129	31		97	92	2	3	52	32	
Manitoba, Central.	9	2		7	7			6	1	
Manitoba, Eastern.	2			2	2			2		
Totals of Manitoba.	11	2		9	9			8	1	
Clinton, B.C.	1	1								
New Westminster, B.C.	4			4	4			2	2	
Victoria, B.C.	1			1	1			1		
Totals of British Columbia.	6	1		5	5			3	2	
Alberta, Northern, N.W.T.	1			1	1				1	
Alberta, Southern, N.W.T.	2			2	2				2	
Assiniboia, Western, N.W.T.	1			1	1			1		
Saskatchewan, N.-W.T.	1	1								
Totals of the N.W.T.	5	1		4	4			1	3	
Totals of Canada.	217	54	1	160	154	3	3	93	54	

VARIOUS OTHER OFFENCES AGAINST THE PERSON.

Westmoreland, N.B.	1	1								
Arthabaska, Que.	1			1	1				1	
Montreal, Que.	13	4		9	9			6	1	
Rimouski, Que.	1			1	1				1	
Three Rivers, Que.	2	2								
Totals of Quebec.	17	6		11	11			6	3	
Algoma, Ont.	1			1	1				1	
Essex, Ont.	3			3	3				3	
Hastings, Ont.	1			1	1			1		
Kent, Ont.	1	1								
Lambton, Ont.	1			1	1					
Welland, Ont.	4	4								
Wentworth, Ont.	22	16		6	6			1		
York, Ont.	1			1	1				1	
Totals of Ontario.	34	21		13	13			2	5	
Totals of Canada	52	28		24	24			8	8	

TABLEAU I. OUTRAGES CONTRE LA PERSONNE—Fin.											CLASSE I.			
SENTENCE.						OCCUPATIONS.						CIVIL CONDITIONS.		
PENITENTIARY. PÉNITENCIER.			D'th. —	Com- mitted to Refor- matories. —	Other Senten- ces. —	Agricultural. —	Com- mercial. —	Domestic. —	Indus- trial. —	Pro- fes- sional. —	La- borers. —	Mar- ried. —	Wi- dowed. —	Singl. —
Two years and un- der five.	Five years and over.	Life.												
Deux ans et moins de cinq.	Cinq ans et plus.	A vie	De mort	En- voyés à la prison de Réfor- me.	Autres Senten- ces.	Agri- cul- teurs.	Com- mer- çants.	Servi- teurs.	Indus- triels.	Pro- fes- sions libé- rales.	Jour- na- liers.	Ma- riés.	En- ven- vage.	Céli- ba- itaires.
AGRESSION AVEC VOIES DE FAIT—Fin.														
					1a.						2	1		1
					1a.	1						1		1
											3	1		2
					3a, 1b.	1	2		2		6	11		2
					11a, 2b.	16	12	3	18	1	40	56	1	38
						2	1		3		1	4		3
							1		1			1		1
						2	2		4		1	5		4
											1			1
											1			1
					11a, 2b.	26	19	4	32	3	60	81	1	68
DIVERS AUTRES OUTRAGES CONTRE LA PERSONNE.														
						1						1		
					2a.	1	4		1	1	3	4		5
						1								1
					2a.	2	4		1	1	3	5		6
									1					1
									3			2		1
						1								1
1											1			1
	1				4a.	1			2		3	5		1
										1				1
1	1				4a.	2			6	1	4	7		6
1	1				6a.	4	4		7	2	7	12		12

a / Sentence deferred. b / Bound to keep the peace.
 / Sentence remise. / Tenus de garder la paix.

TABLE I.			OFFENCES AGAINST THE PERSON— <i>Concluded.</i>												CLASS I.	
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.										USE OF LIQUORS. — USAGE DE LIQUEURS		
	Un- able to read or write. — Inca- pable de lire ou d'é- crire.	Ele- men- tary. — Elé- men- taire.	Supe- rior. — Supé- rieure	Under 16 years.	16 years and under 21.	21 years and under 40.	40 years and over.	Not given.	Mo- de- rate		Im- mo- de- rate					
				Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non- donné.								
				M. F	M. F	M. F	M. F	M. F					M. F			
				H. F	H. F	H. F	H. F	H. F	H. F							
ASSAULT AND BATTERY— <i>Concluded.</i>																
Victoria, Ont.		2			1	1		1					2			
Wellington, Ont.		2		1									2			
Wentworth, Ont.	1	2					3							3		
York, Ont.	1	12			1		8	1	2	1			10	3		
Totaux d'Ontario.	18	76		1	15		54	1	19	2	5		60	35		
Manitoba, Centre.		1					1				6		4	3		
Manitoba, Est.		1	1				2						2			
Totaux de Manitoba.		2	1				3				6		6	3		
Clinton, Col.-B.																
New Westminster, Col.-B.											4					
Victoria, Col.-B.	1										1		1			
Totaux de la Col.-Britann.	1										5		1			
Alberta, Nord, T. du N.-O.											1					
Alberta, Sud, T. du N.-O.											2					
Assiniboia Ouest, T. du N.-O.											1					
Saskatchewan, T. du N.-O.																
Totaux des T. du N.-O.											4					
Totaux du Canada.	32	97	1	1	20		77	2	27	2	31		88	51		
VARIOUS OTHER OFFENCES AGAINST THE PERSON.																
Westmoreland, N.-B.																
Arthabaska, Qué.	1												1			
Montréal, Qué.	4	5			2		5		2				1	8		
Rimouski, Qué.		1		1									1			
Trois-Rivières, Qué.																
Totaux de Québec.	5	6		1	2		5		3				3	8		
Algoma, Ont.		1					1							1		
Essex, Ont.		3			1		2						3			
Hastings, Ont.		1					1							1		
Kent, Ont.																
Lambton, Ont.		1							1					1		
Welland, Ont.																
Wentworth, Ont.		5					4		1					5		
York, Ont.		1	1				2						1	1		
Totaux d'Ontario.		12	1		1		10		2				4	9		
Totaux du Canada.	5	18	1	1	3		15		5				7	17		

TABLEAU I.													OUTRAGES CONTRE LA PERSONNE—Fin.													CLASSE I.	
BIRTH PLACES. LIEUX DE NAISSANCE.													RELIGIONS.													RESI- DENCE.	
BRITISH ISLES. ILES BRITANNIQUES.			Ca- nada.	Unit- ed States — Etats- Unis.	Other Fo- reign Coun- tries. — Autr- es pays étran- gers.	Other Brit- ish Pos- ses- sions. — Autr's posses- sions Brit- anni- ques.	Bap- tists. — Bap- tistes.	R. Ca- tho- lics. — Ca- tholi- ques.	Ch. of Eng- land. — Eglise d'An- gle- terre.	Me- tho- dists. — Mé- tho- dis- tes.	Pres- byte- rians. — Pres- byte- riens.	Pro- tes- tants — Autr's con- fes- sions.	Other Deno- mina- tions. — Autr's con- fes- sions.	Cities and Towns—Villes.	Rural Districts—Districts ruraux.												
Eng- land and Wales — Angle- terre et Galles	Ire- land. — Ir- lande.	Scot- land. — Ecos- se.																									
1	2	3																									
1	1	2	2	1			1					1	1	1	1												
2	2	8	8	1			2	4	3	3	2	1	3	12	1												
7	10	2	71	5		1	32	20	20	11	5	4	60	37													
2		2	2					1	1	5	1		6	1													
2		2	4					2	1	5	1		8	1													
					1								4														
					1								1	5													
9	11	4	116	8	1	2	65	23	21	19	18	5	102	54													
AGRESSION AVEC VOIES DE FAIT—Fin.																											
DIVERS AUTRES OUTRAGES CONTRE LA PERSONNE.																											
			1				1								1												
			8		1		8					1	8	1													
			1				1							1													
			10		1		10					1	8	3													
1	1				1		2	1			1		3	1													
			1								1			1													
			1						1				1														
			5				3	1	1				6														
1			1				1			1			1														
2	1		8		2		6	2	2	1	2		11	2													
2	1		18		3		16	2	2	1	2	1	19	5													

TABLE I. OFFENCES AGAINST PROPERTY WITH VIOLENCE. CLASS II.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDICIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Persons charged. — Per- sonnes accu- sées.	Ac- quit- ted. — Ac- quit- tés.	De- tained for Lu- nacy. — En- pri- son- nés pour cause de folie.	CONVICTIONS. CONDAMNATIONS.			SENTENCE. COMMITTED TO GAOL. — EMPRISONNÉS.			
				Total.	Con- victed 1st.	Con- victed 2nd.	Reite- rated.	With the option of a fine. — Sur option entre la pri- son ou l'a- m'nde	NO OPTION. — SANS OPTION.	
					— Con- dam- nés une fois.	— Con- dam- nés deux fois.	— Plus de 2 rédi- ves.		Un- der one year. — Moins d'un an.	One year and over. — Un an et plus.
BURGLARY AND HAVING BURGLARS' TOOLS										
Colchester, N.S.	1			1	1					
Halifax, N.S.	3	2		1		1		1		
Totals of Nova Scotia.....	4	2		2	1	1		1		
Gaspé, Que.	2			2	2			2		
Joliette, Que.	3			3	3			1		
Montreal, Que.	42	10		32	20	5	7	9	2	
St. Hyacinthe, Que.	1			1	1					
Totals of Quebec.....	48	10		38	26	5	7	12	2	
Carleton, Ont.	2			2	2					
Huron, Ont.	2	2								
Kent, Ont.	1	1								
Lambton, Ont.	1			1	1			1		
Leeds and Grenville, Ont.	2	1		1	1				1	
Lincoln, Ont.	1			1			1			
Northumberland & Durham, O.	1			1	1			1		
Peel, Ont.	1	1								
Perth, Ont.	2			2	2					
Peterborough, Ont.	2	2								
Simcoe, Ont.	1			1	1					
Stormont, Dundas & Glengarry, Ont.	2	2								
Waterloo, Ont.	5	4		1	1				1	
Wellington, Ont.	5			5	5					
Wentworth, Ont.	8	5		3	3			2		
York, Ont.	19	10		9	8	1			3	
Totals of Ontario.....	55	28		27	25	1	1	4	5	
Manitoba, Central.....	1	1								
Manitoba, Eastern.	1			1	1					
Totals of Manitoba.....	2	1		1	1					
New Westminster, B.C.	*2			1	1					
Victoria, B.C.	1			1	1					
Totals of British Columbia.....	3			2	2					
Alberta, Southern, N.W.T.	2	2								
Totals of Canada.....	114	43		70	55	7	8	17	7	

*1 escaped before trial—1 s'est évadé avant son procès.

TABLEAU I. DÉLITS AVEC VIOLENCE CONTRE LA PROPRIÉTÉ. CLASSE II.

SENTENCE.						OCCUPATIONS.						CIVIL CONDITIONS.		
PENITENTIARY.			D'th.	Com-mitted to Refor-ma-tories	Other Senten-ces.							ÉTATS CIVILS.		
PÉNITENCIER.		Life.				Agri-cultural.	Com-mer-cial.	Do-mestic	In-dus-trial.	Pro-fes-sional	La-borers	Mar-ried.	Wi-dowed	Single
Two years and under five.	Five years and over.	—	—	—	—	—	—	—	—	—	—	—	—	—
D'un ans et m'ns de cinq.	Cinq ans et plus.	A vie	De mort.	En-voyés à la prison de Réfor-me.	Autres Senten-ces.	Agri-cul-teurs.	Com-mer-cants.	Servi-teurs.	In-dus-triels.	Pro-fes-sions libé-rales.	Jour-na-liers.	Ma-riés.	En-veu-vage.	Céli-ba-taires.
1									1		1			1
1									1		1			2
2											2	2		3
10	6			1	4a.		2		15		15	3		29
				1										1
12	6			2	4a.		2		15		20	5		33
2									2			1		1
									1			1		
1									1		1	1		1
									1					
	2								2				1	1
1											1	1		
											1	1		
					5a									5
					1a.						3	1		2
4	2						1				8			9
8	4				6a.		1		7		14	6	1	19
1									1					1
1									1					1
1														
1											1			1
2											1			1
24	10			2	10a.		3		24		36	11	1	56

a Sentence deferred—Sentence remise.

TABLE I.

OFFENCES AGAINST PROPERTY WITH VIOLENCE.

CLASS II.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ETÉ COMMISE.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.										USE OF LIQUORS. — USAGE DE LIQUEURS	
	Un- able to read or write.	Ele- men- tary.	Super- rior.	Under 16 years.	16 years and under 21.	21 years and under 40.	40 years and over.	Not given.					Mo- de- rate	Im- mo- de- rate	
	—	—	—	Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non- donné.					—	—	
	Inca- pable de lire ou d'é- crire.	Elé- men- taire.	Supé- rieure	M. F	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	Mo- déré	Im- mo- déré	

BURGLARY AND HAVING BURGLARS' TOOLS.

Colchester, N.-E.		1								1	1	
Halifax, N.-E.		1				1					1	
Totaux de la N.-Ecosse.		2				1				1	2	
Gaspé, Qué.	2									2	2	
Joliette, Qué.	2	1				3					2	1
Montréal, Qué.	6	26		3	2	25	2				4	28
St. Hyacinthe, Qué.		1		1							1	
Totaux de Québec.	10	28		4	2	28	2		2		9	29
Carleton, Ont.		2				2					2	
Huron, Ont.												
Kent, Ont.												
Lambton, Ont.		1				1					1	
Leeds et Grenville, Ont.		1			1						1	
Lincoln, Ont.		1					1				1	
Northumberland et Durham, O.		1				1					1	
Peel, Ont.												
Perth, Ont.		2			1	1						2
Peterborough, Ont.												
Simcoe, Ont.		1				1						1
Storionont, Dundas et Glen- garry, Ont.												
Waterloo, Ont.		1					1					1
Wellington, Ont.		5		4	1						5	
Wentworth, Ont.		3		1	1		1				2	1
York, Ont.		9			7	2					8	1
Totaux d'Ontario.		27		5	11	8	3				21	6
Manitoba, Centre.												
Manitoba, Est.		1				1					1	
Totaux de Manitoba.		1				1					1	
New-Westminster, Col.-B.										1		
Victoria, Col.-B.		1				1						1
Totaux de la Col.-Britann.		1				1				1		1
Alberta, Sud, T. du N.-O.												
Totaux du Canada.	10	59		9	13	39	5		4		33	36

TABLEAU I. DÉLITS AVEC VIOLENCE CONTRE LA PROPRIÉTÉ. CLASSE II.

BIRTH PLACES. — LIEUX DE NAISSANCE.						RELIGIONS.								RESI- DENCE.	
BRITISH ISLES. — ILES BRITANNIQUES.			Canada.	United States — Etats-Unis.	Other Foreign Countries.	Other British Possessions.	Baptists. — Baptistes.	R. Catholics.	Ch. of England.	Methodists.	Presbyterians.	Protestants.	Other Denominations.	Cities and Towns. Villes.	Rural Districts. Districts ruraux.
England and Wales.	Ireland.	Scotland.			— Autres pays étrangers.	Autr's possessions Britanniques.		— Catholiques.	Eglise d'Angleterre.	Methodistes.	Presbytériens.		— Autr's confessions.		
Angle terre et Galles	Irlande.	Ecosse.													

VOL AVEC EFFRACTION ET AYANT EN POSSESSION DES OUTILS DE VOLEUR.

			1										1			1	
			1						1						1		
			2						1				1		1	1	
			2					2								2	
3	1	1	3					1			1	1		2	1	1	
			27					27	3		2			28	1	4	
			1					1						1			
3	1	1	33					31	3		3	1		31		7	
					2								2	1	1		
			1							1				1			
	1										1			1			
	1			1			1							1			
			2					1		1					2		
			1							1				1			
									1								
			1											1			
			5									5		5			
		1	2					1	1		1			3			
			6	1	1			4	2	2			1	9			
	3	1	18	2	3		1	7	4	5	2	5	3	26		1	
			1								1			1			
			1								1			1			
				1				1						1			
				1				1						1			
3	4	2	54	3	3		1	39	8	5	6	6	4	61		9	

TABLE I. OFFENCES AGAINST PROPERTY WITH VIOLENCE. CLASS II.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDICIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Persons charged. — Per- sonnes accu- sées.	Ac- quit- ted. — Ac- quit- tés.	De- tained for Lu- nacy. — Em- pri- son- nés pour cause de folie.	CONVICTIONS. — CONDAMNATIONS.			SENTENCE.		
							COMMITTED TO GAOL		
							EMPRISONNÉS.		
				Total.	Con- victed 1st.	Con- victed 2nd.	Reite- rated.	With the option of a fine. — Sur option entre la pri- son ou l'a- m'nde	No OPTION. — SANS OPTION.
— Con- dam- nés une fois.	— Con- dam- nés deux fois.	— Plus de 2 réci- des.	Un- der one year.		One year and over.				
HOUSE AND SHOPBREAKING.									
Queen's, P.E.I.	4			4	4				
Colchester, N.S.	1			1	1			1	
Digby, N.S.	2	1		1	1				
Halifax, N.S.	7	2		5	3	2		3	
Hants, N.S.	8	7		1			1	1	
Inverness, N.S.	3	1		2	2				
Queen's, N.S.	1			1	1				1
Victoria, N.S.	1	1							
Totals of Nova Scotia.....	23	12		11	8	2	1	5	1
Madawaska, N.B.	1			1	1				
Northumberland, N.B.	2			2	2			2	
Totals of New Brunswick.	3			3	3			2	
Bedford, Que.	4			4	3	1		3	
Montreal, Que.	9			9	9			2	
St. Francis, Que.	2			2	2			1	
Three Rivers, Que.	2			2	2				
Totals of Quebec.	17			17	16	1		6	
Algoma, Ont.	2			2	2				
Brant, Ont.	3	1		2	1		1	2	
Carleton, Ont.	12	2		10	4	4	2	4	3
Frontenac, Ont.	2			2		2		2	
Grey, Ont.	2			2	2				
Haldimand, Ont.	1			1	1				
Hastings, Ont.	3	1		2	2			2	
Kent, Ont.	2	2							
Lambton, Ont.	4			4	4			1	
Lenark, Ont.	1	1							
Lincoln, Ont.	3			3	2	1			
Middlesex, Ont.	6	1		5	4		1	2	1
Norfolk, Ont.	5	1		4	4			4	
Northumberland & Durham, O..	4	1		3	3			1	
Ontario, Ont.	1			1	1				
Peel, Ont.	2			2	2			2	
Peterborough, Ont.	3			3	3				
Prescott and Russell, Ont.	1			1	1			1	
Renfrew, Ont.	1			1	1			1	
Simcoe, Ont.	3			3	3			3	
Stormont, D'das & Glengarry, O.	3			3	2	1			3

TABEAU I. DÉLITS AVEC VIOLENCE CONTRE LA PROPRIÉTÉ. CLASSE II.

SENTENCE.						OCCUPATIONS.						CIVIL CONDITIONS.		
PENITENTIARY.			D'th.	Com-mit-toed to Refor-ma-tories.	Other Senten-ces.	Agri-cultural.	Com-mer-cial.	Do-mestic.	In-dus-trial.	Pro-fes-sional.	La-borers.	Mar-ried.	Wi-dowed.	Single.
PÉNITENCIER.	Life.	—												
Two years and under five.	Five years and over.	—	—	—	—	—	—	—	—	—	—	—	—	—
Deux ans et m'ns de cinq.	Cinq ans et plus.	A vie	De mort	En-voyés à la prison de Réfor-me.	Autres Senten-ces.	Agri-cul-teurs.	Com-mer-çants.	Servi-teurs.	In-dus-triels.	Pro-fes-sions libé-rales.	Jour-nal-iers.	Ma-riés.	En-veu-vage.	Céli-bai-taires.

BRIS DE MAISONS ET DE MAGASINS.

4											1			4
1				2			1				1			1
							1		1		2			5
	2						2				1			1
												2		1
1	2			2			2	2	1		4	2		9
1											2			1
														2
1											2			3
3	1			2	1a.				1		4	1		3
1					1a.						4	1		8
				2							2	1		1
											2			2
4	1			4	2a.				1		12	3		14
2											2			2
3											1			2
									3		3	1		9
				2							2	1		1
					1a.		1				1	1		2
								1			1	2		
	2			1			1		1		2			4
1					2a.						3			3
1	1				1a.				2		2	2		3
							1	1		1	1			4
2								1			2			3
					1a.						1	1		
									2			1		1
	3						3					1		3
									1					
											1			1
							1				2			3
							1		2			1		2

f Sentence deferred.
a Sentence remise.

TABLE I. OFFENCES AGAINST PROPERTY WITH VIOLENCE. CLASS II.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. INSTRUCTION.			AGES.										USE OF LIQUORS. — USAGE DE LIQUEURS	
	Un- able to read or write.	Ele- men- tary.	Supé- rior.	Under 16 years.	16 years and under 21.	21 years and under 40.	40 years and over.	Not given.	Im- mo- de- rate		Mo- de- rate			Im- mo- de- rate	
	—	—	—	Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non- donné.							
	Inca- pable de lire ou d'é- crire.	Elé- men- taire.	Supé- rieure	M. F	M. F	M. F	M. F	M. F							
Queen's, I. du P.-E.		4			3			1			4				
Colchester, N.-E.	1					1					1				1
Digby, N.-E.		1			1						1				
Halifax, N.-E.		5		2	2		1				5				
Hants, N.-E.		1				1					1				
Inverness, N.-E.		2					1		1		2				
Queen's, N.-E.		1			1						1				
Victoria, N.-E.															
Totaux de la N.-Ecosse.	1	10		2	4	2	2	1			10	1			
Madawaska, N.-B.	1				1						1				
Northumberland, N.-B.		2			2						2				
Totaux du N.-Brunswick.	1	2			3						3				
Bedford, Qué.	1	3			3	1					1	3			
Montréal, Qué.	1	8		4	1	3	1				5	4			
St. François, Qué.		2			1	1					1	1			
Trois-Rivières, Qué.		2		2							2				
Totaux de Québec.	2	15		6	5	5	1				9	8			
Algoma, Ont.	2				2							2			
Brant, Ont.	2				1	1					2				
Carleton, Ont.		10		4	2	4					9	1			
Frontenac, Ont.		1			1	1					1				
Grey, Ont.	1	1		2							2				
Haldimand, Ont.		1			1	1					1				
Hastings, Ont.	1	1				2					2				
Kent, Ont.															
Lambton, Ont.	1	3		1	1	2					4				
Lanark, Ont.															
Lincoln, Ont.	1	2		3							1	2			
Middlesex, Ont.		5			3	1	1				3	2			
Norfolk, Ont.		4			3	1					4				
Northumberland et Durham, O.		3			2	1					1	2			
Ontario, Ont.		1					1				1				
Peel, Ont.		2				1	1					2			
Peterborough, Ont.		3				2						3			
Prescott et Russell, Ont.		1						1				1			
Renfrew, Ont.	1					1						1			
Simcoe, Ont.		3			3							3			
Storm't, D'das et Gleng'ry, O.		3				3						3			

TABLEAU I. DÉLITS AVEC VIOLENCE CONTRE LA PROPRIÉTÉ. CLASSE II.

BIRTH PLACES. LIEUX DE NAISSANCE.							RELIGIONS.							RESI- DENCE.
BRITISH ISLES. — ILES BRITANNIQUES.			Ca- nada.	United States	Other Fo- reign Coun- tries.	Other Brit- ish Pos- ses- sions.	Bap- tists.	R. Ca- tho- lics.	Ch. of Eng- land.	Me- tho- dists.	Pres- bye- terians.	Pro- tes- tants	Other Deno- mina- tions.	Cities and Towns— Villes. Rural Districts— Districts ruraux.
Eng- land and Wales	Ire- land.	Scot- land.		— — Etats- Unis.	— — Autres pays étran- gers.	Autr's posses- sions Bri- tanni- ques.	— — Bap- tistes.	— — Ca- tholi- ques.	— — Eglise d'An- gle- terre.	— — Mé- tho- dis- tes.	— — Pres- bye- tériens.	— — Pro- tes- tants	Autr's con- fes- sions.	
Angle- terre et Galles	Ir- lande.	Ecos- se.												
			4					1				3		3 1
			1					1				1		1
			1					1				1		1
			4		1		1	2		2		1		5
			1								1			1
			2									2		2
			1							1				1
			10		1		1	3		3	1	3		7 4
			1					1						1
			2					1				1		2
			3					2				1		2 1
1			3					2			2			4
1			8		1			5				4		3
1				1				1				1		2
			2					2						2
2			13	1	1			10			2	5		8 9
			2					2						2
			2					1						1
	1		6	1	2		1	3	1			3	2	9 1
		1	1					2						2
1			1						1	1				2
			1						1					1
			2							2				1
1			3						1	3				4
			3											
1	1		2	1				2	1	2		1		3 5
1	1		4				3				1			2 2
			1				1					2		3
			1							1				1
			2						1	1				1
	1		2						3					3
			1					1						1
			1					1						1
			3					1		1	1			3
2			1					1	2					3

TABLE I. OFFENCES AGAINST PROPERTY WITH VIOLENCE. CLASS II.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDICIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Persons charged. — Per- sonnes accu- sées.	Ac- quit- ted. — Ac- quit- tés.	De- tained for Lu- nacy. — Em- pri- son- nés pour cause de folie.	CONVICTIONS. — CONDAMNATIONS.				SENTENCE.		
				Total.	Con- victed 1st.	Con- victed 2nd.	Reite- rated.	COMMITTED TO GAOL — EMPRISONNÉS.		
					—	—	—	With the option of a fine. — Sur option entre la pri- son ou l'a- m'nde	No OPTION. — SANS OPTION.	— OPTION.
					Con- dam- nés une fois.	Con- dam- nés deux fois.	Plus de 2 rédi- ves.		Un- der one year. — Moins d'un an.	One year and over. — Un an et plus.
HOUSE AND SHOPBREAKING— <i>Concluded.</i>										
Thunder Bay, Ont.	2	1		1	1					
Welland, Ont.	1			1	1					1
Wellington, Ont.	2	1		1	1					
Wentworth, Ont.	9	3		6	2	1	3		1	3
York, Ont.	72	43		29	29				18	1
Totals of Ontario.	150	58		92	76	9	7		44	12
Manitoba, Eastern.	11	6		5	4		1		2	
Clinton, B.C.	4			4	4				2	1
New Westminster, B.C.	3	1		2	2					
Victoria, B.C.	2			2	2					
Totals of British Columbia.	9	1		8	8				2	1
Alberta, Northern, N.W.T.	6	1		5	4	1			1	1
Assiniboia, Eastern, N.W.T.	2			2	2					
Totals of the N.W.T.	8	1		7	6	1			1	1
Totals of Canada.	225	78		147	125	13	9		62	15
WAREHOUSE AND FREIGHT CAR BREAKING.										
Algoma, Ont.	3			3	1	2			3	
Brant, Ont.	3			3	3					
Essex, Ont.	2	1		1	1				1	
Haldimand, Ont.	1			1	1				1	
Kent, Ont.	2			2	2				2	
Renfrew, Ont.	2			2	2				1	
Waterloo, Ont.	1	1								
Wentworth, Ont.	1	1								
York, Ont.	1	1								
Totals of Ontario.	16	4		12	10	2			8	
Totals of Canada.	16	4		12	10	2			8	
ROBBERY AND DEMANDING WITH MENACES.										
Halifax, N.S.	1			1	1					
Montreal, Que.	4			4	2		2		1	1
Richelieu, Que.	16	4		12	10		2			

TABLEAU I. DÉLITS AVEC VIOLENCE CONTRE LA PROPRIÉTÉ. CLASSE II.														
SENTENCE.						OCCUPATIONS.						CIVIL CONDITIONS.		
PENITENTIARY. — PÉNITENCIER.			D'th. De mort	Com- mit- ted to Refor- matories.	Other Senten- ces.							ETATS CIVILS.		
Two years and un- der five.	Five years and over.	Life.		—	—	Agri- cul- tural.	Com- mer- cial.	Do- mestic	In- dus- trial.	Pro- fes- sional	La- borers	Mar- ried.	Wi- dowed	Single
Deux ans et moins de cinq.	Cinq ans et plus.	A vie		—	Autres Senten- ces.	—	—	—	—	—	—	—	—	—
				En- voyés à la prison de Réfor- me.		Agri- cul- teurs.	Com- mer- çants.	Servi- teurs.	In- dus- triels.	Pro- fes- sions libé- rales.	Jour- na- liers.	Mar- riés.	En- veu- vage.	Céli- ba- itaires.
BRIS DE MAISONS ET DE MAGASINS—Fin.														
1									1			1		1
					1a.				1			1		1
1					1a.				1		4	1		5
5				1	4a.		1	1	3		14	4	1	24
15	6			4	11a.	2	8	3	18	1	41	17	1	74
1	2								1		2	2		3
1								1	1		2			4
2									2				1	1
1	1													
4	1							1	3		2		1	5
3						1					4			5
2												1		1
						1					4	1		6
5														
35	12			10	13a.	5	10	4	24	1	68	25	2	118
BRIS D'ENTREPOTS ET DE WAGONS DE FRET.														
					3a.						3			3
											1			3
											1			1
									2					2
				1										2
				1	3a.				2		5			12
				1	3a.				2		5			12
VOL ET DEMANDES AVEC MENACES.														
1							1					1		
1	1								1		3	1		5
6				6					2		2	2	1	9

TABLE I. OFFENCES AGAINST PROPERTY WITH VIOLENCE. CLASS II.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.								USE OF LIQUORS. — USAGE DE LIQUEURS	
	Un- able to read or write.	Ele- men- tary.	Super- rior.	Under 16 years.	16 years and under 21.	21 years and under 40.	40 years and over.	Not given.	Mo- de- rate	Im- mo- de- rate			
				Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non- donné.					
				M. F	M. F	M. F	M. F	M. F			M. F		
	Inca- pable de lire ou d'é- crire.	Elé- men- taire.	Supé- rieure	M. F	M. F	M. F	M. F	M. F	M. F	Mo- dé- ré	Im- mo- dé- ré		
HOUSE AND SHOPBREAKING— <i>Concluded.</i>													
Thunder Bay, Ont.		1							1		1		
Welland, Ont.		1				1					1		
Wellington, Ont.		1			1						1		
Wentworth, Ont.		6		1	3	2					3		
York, Ont.	2	27		5	14	10					19		
Totaux d'Ontario.	11	80		16	36	35		3		2	54		
Manitoba, Est.	1	4			2	3					2		
Clinton, Col.-B	2	2			1	1	2				4		
New Westminster, Col.-B.									2				
Victoria, Col.-B		2						2			2		
Totaux de la Col.-Britann.	2	4			1	1	2	2		2	6		
Alberta, Nord, T. du N.-O.		5			2		2		1		5		
Assiniboia, Est, T. du N.-O.										2			
Totaux des T. du N.-O.		5			2		2		1	2	5		
Totaux du Canada.	18	124		24	56	1	49	9		8	93		
WAREHOUSE AND FREIGHT CAR BREAKING.													
Algoma, Ont.	2	1			3						1		
Brant, Ont.		3		3							3		
Essex, Ont.		1			1						1		
Haldimand, Ont.		1			1						1		
Kent, Ont.		2			1		1				1		
Renfrew, Ont.	1	1		2							2		
Waterloo, Ont.													
Wentworth, Ont.													
York, Ont.													
Totaux d'Ontario.	3	9		5	6	1					9		
Totaux du Canada.	3	9		5	6	1					9		
ROBBERY AND DEMANDING WITH MENACES.													
Halifax, N.-E.		1				1					1		
Montréal Qué	2	2			1	3					4		
Richelieu, Qué.	10	2		5	1	1		3			7		

TABLEAU I. DÉLITS AVEC VIOLENCE CONTRE LA PROPRIÉTÉ. CLASSE II.

BIRTH PLACES. — LIEUX DE NAISSANCE.							RELIGIONS.							RESI- DENCE.	
BRITISH ISLES. — ILES BRITANNIQUES.			Canada.	United States — Etats-Unis.	Other Foreign Countries. — Autres pays étrangers.	Other British Possessions. — Autr's possessions Britanniques.	Bap-	R. Ca-	Ch. of	Me-	Pres-	Pro-	Other	Cities and Towns—Villes.	Rural Districts—Districts ruraux.
Eng-	Ire-	Scot-					tists.	tho-	Eng-	tho-	by-		Deno-		
land	land.	land.					—	—	—	—	—		—		
and	—	—													
Wales	—	—													
—	—	—													
Angle	Ir-	Ecos-					Bap-	Ca-	Eglise	Me-	Pres-		Autr's		
terre	lande.	se.					tistes.	tholi-	d'An-	tho-	byté-	tants	con-		
et								ques.	gle-	dis-	riens.		fes-		
Galles									terre.	tes.			sions.		

BRIS DE MAISONS ET DE MAGASINS—Fin.

1			1					1							1
1			1					1						1	
	1		5				1	4		1		1		6	
2	4	2	19	2			1	10	8	6	4			29	
9	9	3	65	4	2		6	31	19	20	6	7	2	78	14
2	1		1	1					4				1	4	1
			2	2				4							4
1		1							1		1			2	
1		1	2	2				4	1		1			4	4
1	1	1	2					1	3		1			3	2
														2	
1	1	1	2					1	3		1			5	2
15	11	5	100	8	4		7	52	27	23	11	19	3	111	36

BRIS D'ENTREPOTS ET DE WAGONS DE FRET.

			3					3							3
			3				1	1	1					3	
				1								1		1	
				1					1	1					1
			2					2						2	
			8	4			1	6	2	1		1	1	8	4
			8	4			1	6	2	1		1	1	8	4

VOL ET DEMANDES AVEC MENACES.

			1						1						1
	1		3					4						4	
			11					11						6	6

TABLE I. OFFENCES AGAINST PROPERTY WITH VIOLENCE—*Concluded.* CLASS II.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDICIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Persons charged. — Per- sonnes accusées	Ac- quit- ted. — Ac- quit- tés.	De- tained for Lu- nacy. — Em- pri- son- nés pour cause de folie.	CONVICTIONS. — CONDAMNATIONS.				SENTENCE.		
				Total.	Con- victed 1st. — Con- dam- nés une fois.	Con- victed 2nd. — Con- dam- nés deux fois.	Reite- rated. — Plus de 2 réci- ves.	COMMITTED TO GAOL — EMPRISONNÉS.		
								With the option of a fine. — Sur option entre la pri- son ou l'a- me'de	NO OPTION. — SANS OPTION	
									Un- der one year. — Moins d'un an.	One year and over. — Un an et plus.

ROBBERY AND DEMANDING WITH MENACES—*Concluded.*

Rimouski, Que.....	8	1	7	7				2	
Terrebonne, Que.....	1		1	1					1
Totals of Quebec.....	29	5	24	20		4		3	2
Brant, Ont.....	2	2							
Elgin, Ont.....	1		1	1					
Essex, Ont.....	4	3	1	1				1	
Grey, Ont.....	1		1	1				1	
Kent, Ont.....	1	1							
Lambton, Ont.....	2	1	1	1					
Leeds and Grenville, Ont.....	4	2	2	2					
Middlesex, Ont.....	1		1	1				1	
Simcoe, Ont.....	3	3							
Welland, Ont.....	1	1							
Wellington, Ont.....	1	1							
Wentworth, Ont.....	2	2							
York, Ont.....	26	10	16	16				10	1
Totals of Ontario.....	49	26	23	23				13	1
Clinton, B.C.....	1		1	1					
New Westminster, B.C.....	4	1	3	3					
Victoria, B.C.....	2		2	2					2
Totals of British Columbia.....	7	1	6	6					2
Totals of Canada.....	86	32	54	50		4		16	5

OFFENCES AGAINST PROPERTY WITHOUT VIOLENCE. CLASS III.

LARCENY FROM DWELLING HOUSES.

Colchester, N.S.....	1		1	1					
Iberville, Que.....	1		1	1				1	
Quebec, Que.....	2		2	2				1	
Totals of Quebec.....	3		3	3				2	
Prescott and Russell, Ont.....	2		2	2				2	
Manitoba, Eastern.....	1		1			1			
New Westminster, B.C.....	2	1	1	1				1	
Victoria, B.C.....	2	1	1	1					
Totals of British Columbia.....	4	2	2	2				1	
Totals of Canada.....	11	2	9	8		1		5	

TABLEAU I. DÉLITS AVEC VIOLENCE CONTRE LA PROPRIÉTÉ—Fin. CLASSE II.													
SENTENCE.						OCCUPATIONS.						CIVIL CONDITIONS.	
PENITENTIARY. — PÉNITENCIER.			D'th. — De mort	Com- mit- ted to Refor- ma- to- ries En- voyés à la prison de Réfor- me.	Other Senten- ces. Autres Senten- ces.	Agricultural. — Agriculteurs.	Com- mercial. — Commerçants.	Domestic —					

a Sentence deferred—Sentence remise.

TABLE I. OFFENCES AGAINST PROPERTY WITH VIOLENCE—*Concluded.* CLASS II.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.										USE OF LIQUORS. — USAGE DE LIQUEURS	
	Un- able to read or write.	Ele- men- tary.	Super- ior.	Under 16 years. — Moins de 16 ans.	16 years and under 21. — 16 ans et moins de 21.	21 years and under 40. — 21 ans et moins de 40.	40 years and over. — 40 ans et plus.	Not given. — Non- donné.	Mo- de- rate		Im- mo- de- rate				
	—	—	—												
	Inca- pable de lire ou d'é- crire.	Elé- men- taire.	Supé- rieure	M. F	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.			
	</														

ROBBERY AND DEMANDING WITH MENACES—*Concluded.*

Rimouski, Qué .....	...	7	...	4	2	1	...	...	...	...	6	1	...	...	...
Terrebonne, Qué.....	1	...	...	...	...	...	...	...	...	1	1	...	...	...	...
Totaux de Québec.....	13	11	...	9	5	5	3	...	...	1	14	9	...	...	...
Brant, Ont.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Elgin, Ont.....	1	...	...	...	...	1	...	...	...	...	...	1	...	...	...
Essex, Ont.....	...	1	...	...	1	...	...	...	...	...	...	1	...	...	...
Grey, Ont.....	...	1	...	...	...	1	...	...	...	...	...	1	...	...	...
Kent, Ont.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Lambton, Ont.....	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...
Leeds et Grenville, Ont.....	...	2	...	...	...	...	1	1	...	...	2	...	...	...	...
Middlesex, Ont.....	...	1	...	...	...	1	...	...	...	...	1	...	...	...	...
Simcoe, Ont.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Welland, Ont.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Wellington, Ont.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Wentworth, Ont.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
York, Ont.....	1	15	...	...	6	9	1	...	...	...	8	8	...	...	...
Totaux d'Ontario.....	2	21	...	...	7	12	2	...	1	...	10	12	...	...	...
Clinton, Col.-B.....	...	1	...	...	...	...	1	...	...	...	1	...	...	...	...
New-Westminster, Col.-B.....	...	...	...	...	...	...	...	...	3	...	1	...	...	...	...
Victoria, Col.-B.....	...	2	...	...	...	2	...	...	...	...	1	1	...	...	...
Totaux de la Col.-Britann.....	...	3	...	...	...	2	1	...	3	...	2	1	...	...	...
Totaux du Canada.....	15	36	...	9	12	20	6	4	1	27	22	...	...	...	...

OFFENCES AGAINST PROPERTY WITHOUT VIOLENCE. CLASS III.

LARCENY FROM DWELLING HOUSES.

Colchester, N.-E.....	...	1	...	...	...	1	...	...	...	...	...	1	...	...	...
Therbyville, Qué.....	...	1	...	...	...	1	...	...	...	...	...	1	...	...	...
Québec, Qué.....	...	2	...	...	1	1	...	...	...	...	2	...	...	...	...
Totaux de Québec.....	...	3	...	...	1	2	...	...	...	...	2	1	...	...	...
Prescott et Russell, Ont.....	...	2	...	...	...	...	...	...	2	...	...	2	...	...	...
Manitoba, Est.....	...	1	...	...	1	...	...	...	...	...	1	...	...	...	...
New-Westminster, Col.-B.....	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...
Victoria, Col.-B.....	...	1	...	...	...	1	...	...	...	...	1	...	...	...	...
Totaux de la Col.-Britann.....	...	1	...	...	...	1	...	...	1	...	1	...	...	...	...
Totaux du Canada.....	...	8	...	...	2	4	...	...	3	...	4	4	...	...	...

TABLEAU I. DELITS AVEC VIOLENCE CONTRE LA PROPRIÉTÉ -Fin. CLASSE II.															
BIRTH PLACES. LIEUX DE NAISSANCE.							RELIGIONS.						RESI- DENCE.		
BRITISH ISLES. ILES BRITANNIQUES.			Canada.	United States — Etats-Unis.	Other Foreign Countries. — Autres pays étrangers.	Other British Possessions. — Autr's possessions Britanniques.	Bap- tists. — Bap- tistes.	R. Ca- tho- lics. — Catho- liques.	Ch. of Eng- land. — Eglise d'An- gle-terre.	Metho- dists — Métho- distes.	Pres- byte- rians. — Pres- byté- riens.	Protes- tants	Other Deno- mina- tions. — Autr's con- fessions.	Cities and Towns—Villes.	Rural Districts—Districts ruraux.
Eng- land and Wales — Angle terre et Galles	Ire- land. — Ir- lande.	Scot- land. — Ecos- se.													
VOL ET DEMANDES AVEC MENACES—Fin.															
			7 1					7				1		4	3 1
	1		22					22				1		14	10
			1				1							1	
			1	1					1					1	
									1					1	
	1														

TABLE I. OFFENCES AGAINST PROPERTY WITHOUT VIOLENCE. CLASS III.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDICIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Persons charged. — Per- sonnes accu- sées.	Ac- quit- ted. — Ac- quit- tés.	De- tained for Lu- nacy. — Em- pri- son- nés pour cause de folie.	CONVICTIONS. — CONDAMNATIONS.				SENTENCE.		
				Total.	Con- victed 1st. — Con- dam- nés une fois.	Con- victed 2nd. — Con- dam- nés deux fois.	Reite- rated. — Plus de 2 rédi- ves.	COMMITTED TO GAOL — EMPRISONNÉS.		
								With the option of a fine. — Sur option entre la pri- son ou l'a- m'nde	No OPTION. — SANS OPTION	
									Un- der one year. — Moins d'un an.	One year and over. — Un an et plus.
BRINGING STOLEN PROPERTY INTO CANADA.										
St. Francis, Que.....	1			1	1				1	
Essex, Ont.....	1			1	1				1	
Lambton, Ont.....	3	1		2	2				1	1
Totals of Ontario.....	4	1		3	3				2	1
Alberta, Southern N.-W.T.....	*1									
Totals of Canada.....	6	1		4	4				3	1
LARCENY FROM THE PERSON.										
Halifax, N.S.....	†4	1		1	1				1	
Montreal, Que.....	21	8		13	7	2	4		3	1
Quebec, Que.....	1			1	1					
Totals of Quebec.....	22	8		14	8	2	4		3	1
Grey, Ont.....	3	2		1		1			1	
Hastings, Ont.....	2	1		1	1					
Wellington, Ont.....	1			1			1			
Wentworth, Ont.....	3	2		1	1				1	
York, Ont.....	1			1	1					
Totals of Ontario.....	10	5		5	3	1	1		2	
Manitoba, Eastern.....	2			2	2				1	
New Westminster, B.C.....	3	1		2	2				1	
Victoria, B.C.....	1			1		1				
Totals of British Columbia.....	4	1		3	2	1			1	
Totals of Canada.....	42	15		25	16	4	5		8	1
HORSE, CATTLE AND SHEEP STEALING.										
Westmoreland, N.B.....	1	1								
Iberville, Que.....	1			1	1					
Joliette, Que.....	1			1			1		1	

* 1 *nolle prosequi*.† 2 *nolle prosequi*.

TABLEAU I. DÉLITS SANS VIOLENCE CONTRE LA PROPRIÉTÉ. CLASSE III.														
SENTENCE.						OCCUPATIONS.						CIVIL CONDITIONS.		
PENITENTIARY. — PÉNITENCIER.			D'th.	Com- mit- ted to Refor- ma- to- ries	Other Senten- ces.	Agricultural.	Com- mer- cial.	Do- mestic	In- dus- trial.	Pro- fes- sional	La- borers	Mar- ried.	Wi- dowed	Single
Two years and un- der five.	Five years and over.	Life.												
— D'un ans et moins de cinq.	— Cinq ans et plus.	— A vie.	De mort	En- voyés à la prison de Ré- forme.	Autres Senten- ces.	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	Agri- cul- teurs.	Com- mer- çants.	Servi- teurs.	In- dus- triels.	Pro- fes- sions libé- rales.	Jour- na- liers.	Ma- riés.	En- veu- vage.	Céli- ba- taires.
EFFETS VOLES APPORTÉS EN CANADA.														
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	2	.....	.....	1
.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	2	.....	.....	3
.....
.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	3	1	.....	3
VOL SUR LA PERSONNE.														
.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1	.....	.....
2	5	.....	.....	.....	2a.	.....	1	.....	5	.....	6	5	.....	8
1	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	1
3	5	.....	.....	.....	2a.	.....	1	.....	6	.....	6	5	.....	9
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	.....	1
.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	1	.....	.....	1
.....	2	.....	.....	1	.....	.....	.....	.....	.....	.....	4	1	.....	4
1	.....	.....	.....	.....	.....	.....	1	.....	.....	1	.....	.....	.....	2
1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
6	7	.....	.....	1	2a.	.....	2	.....	7	1	10	7	.....	16
VOL DE CHEVAUX, BÉTAIL ET MOUTONS.														
.....
1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	.....	.....

a Sentence deferred.—Sentence remise.

TABLE I. OFFENCES AGAINST PROPERTY WITHOUT VIOLENCE. CLASS III.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.										USE OF LIQUORS. — USAGE DE LIQUEURS	
	Un- able to read or write.	Ele- men- tary.	Super- rior.	Under 16 years.	16 years and under 21.	21 years and under 40.	40 years and over.	Not given.	Mo- de- rate	Im- mo- de- rate					
				Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non- donné.							
				M.	F.	M.	F.	M.			F.	M.	F.	M.	F.
	Inca- pable de lire ou d'é- crire.	Elé- men- taire.	Supé- rieure	— — H.	— — F.	— — H.	— — F.	— — H.	— — F.	— — H.	— — F.	Mo- dé- ré	Im- mo- dé- ré		

BRINGING STOLEN PROPERTY INTO CANADA.

St. François, Qué.....	1					1								1	
Essex, Ont.....	1														1
Lambton, Ont.....	2					2								2	
Totaux d'Ontario.....	3					2								2	1
Alberta, Sud, T. du N.-O.....															
Totaux du Canada.....	4					3								3	1

LARCENY FROM THE PERSON.

Halifax, N.-E.....	1									1					1
Montréal, Qué.....	3	10			1	10	1	1						3	10
Québec, Qué.....	1					1									1
Totaux de Québec.....	3	11			1	11	1	1						3	11
Grey, Ont.....	1				1										1
Hastings, Ont.....	1					1									1
Wellington, Ont.....	1				1									1	
Wentworth, Ont.....	1													1	
York, Ont.....	1						1							1	
Totaux d'Ontario.....	1	4			2	2	1							2	3
Manitoba, Est.....	1	1				1	1							1	1
New Westminster, Col.-B.....										2					
Victoria, Col.-B.....	1					1								1	
Totaux de la Col.-Britann.....	1					1				2				1	
Totaux du Canada.....	5	17	1		3	15	3	2		2				7	16

HORSE, CATTLE AND SHEEP STEALING.

Westmoreland, N.-B.....															
Therbyville, Qué.....	1					1									1
Joliette, Qué.....	1							1							1

TABLE I. OFFENCES AGAINST PROPERTY WITHOUT VIOLENCE. CLASS III.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDICIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Persons charged. — Per- sonnes accu- sées.	Ac- quit- ted. — Ac- quit- tés.	De- tained for Lu- nacy. — Em- pri- son- nés pour cause de folie.	CONVICTIONS. — CONDEMNATIONS.				SENTENCE.		
								COMMITTED TO GAOL — EMPRISONNÉS.		
				Total.	Con- victed 1st.	Con- victed 2nd.	Reite- rated.	With the option of a fine. — Sur option entre la pri- son ou l'a- m'nde	SANS OPTION.	
					Con- dam- nés une fois.	Con- dam- nés deux fois.	Plus de 2 rédi- ves.	Un- der one year. — Moins d'un an.	One year and over. — Un an et plus.	
HORSE, CATTLE AND SHEEP STEALING— <i>Concluded.</i>										
Montreal, Que.....	6	2	.....	4	1	3	.....	2	.....
Richelieu, Que.....	1	.....	.....	1	1	.....	.....	1	.....
St. Francis, Que.....	1	.....	.....	1	1	.....	.....	.....	.....
Terrebonne, Que.....	1	.....	.....	1	1	.....	.....	.....	.....
Totals of Quebec.....	11	2	.....	9	5	3	1	4	.....
Brant, Ont.....	1	1	.....	.....	.....	.....	.....	.....	.....
Bruce, Ont.....	2	1	.....	1	1	.....	.....	1	.....
Essex, Ont.....	6	5	.....	1	1	.....	.....	1	.....
Haldimand, Ont.....	2	.....	.....	2	2	.....	.....	.....	.....
Halton, Ont.....	1	.....	.....	1	1	.....	.....	1	.....
Hastings, Ont.....	6	.....	.....	6	6	.....	.....	2	1
Kent, Ont.....	1	.....	.....	1	1	.....	.....	.....	1
Lennox and Addington, Ont.....	2	.....	.....	2	.....	2	.....	.....	.....
Lincoln, Ont.....	1	1	.....	.....	.....	.....	.....	.....	.....
Middlesex, Ont.....	1	.....	.....	1	.....	1	.....	1	.....
Simcoe, Ont.....	6	3	.....	3	3	.....	.....	.....	1
Victoria, Ont.....	2	.....	.....	2	2	.....	.....	.....	2
Wentworth, Ont.....	2	1	.....	1	.....	1	.....	.....	.....
York, Ont.....	24	16	.....	8	8	.....	.....	7	.....
Totals of Ontario.....	57	28	.....	29	25	4	.....	13	5
Manitoba, Eastern.....	4	.....	.....	4	4	.....	.....	2	.....
Victoria, B.C.	1	1	.....	.....	.....	.....	.....	.....	.....
Alberta, Northern, N.W.T.....	1	1	.....	.....	.....	.....	.....	.....	.....
Alberta, Southern, N.W.T.....	7	2	.....	5	5	.....	.....	5	.....
Totals of the N.W.T.....	8	3	.....	5	5	.....	.....	5	.....
Totals of Canada.....	82	35	.....	47	39	7	1	24	5
LARCENY.										
Queen's, P.E.I.	18	10	.....	8	7	1	.....	7	.....
Annapolis, N.S.	4	1	.....	3	3	.....	.....	.....	.....
Cape Breton, N.S.....	2	.....	.....	2	2	.....	.....	2	.....
Colchester, N.S.....	4	1	.....	3	3	.....	.....	3	.....
Cumberland, N.S.....	16	5	.....	11	9	1	1	6	.....
Halifax, N.S.....	*44	13	.....	28	22	3	3	17	1
Hants, N.S.....	2	.....	.....	2	2	.....	.....	2	.....
King's, N.S.....	5	1	.....	4	4	.....	.....	4	.....

* 3 nolle prosequi.

TABLEAU I. DÉLITS SANS VIOLENCE CONTRE LA PROPRIÉTÉ. CLASSE III.														
SENTENCE.						OCCUPATIONS.						CIVIL CONDITIONS. ÉTATS CIVILS.		
PENITENTIARY. — PÉNITENCIER.			D'th. — De mort	Com- mit- ted to Refor- ma- to- ries. En- voyés à la prison de Réfor- me.	Other Senten- ces. Autres Senten- ces.	Agri- cul- tural. — Agri- cul- teurs.	Com- mer- cial. — Com- mer- çants.	Do- mestic — Servi- teurs.	Indus- trial. — Indus- triels.	Pro- fes- sional — Pro- fes- sions libé- rales.	La- borers — Jour- na- liers.	Mar- ried. — Ma- riés.	Wi- dowed — En veu- vage.	Single — Céli- ba- taires.
Two years and un- der five.	Five years and over.	Life.												
— Deux ans et m'ns de cinq.	— Cinq ans et plus.	— A vie												
VOL DE CHEVAUX, BÉTAIL ET MOUTONS—Fin.														
1	1					1			1		2	1		3
1											1		1	1
1											1	1		
4	1					1			1		6	4	1	4
									1					1
								1						1
2									1		1	1		1
2					1a.						1	1		6
	2					1					1	1		1
											1			1
1				1							2			3
1											2			2
1						1	1				1			1
											2	3		5
7	2			1	1a.	2	1	1	2	...	16	7		22
2						2			1		1			4
												2		3
												2		3
13	3			1	1a.	5	1	1	4	.....	23	13	1	33
LARCIN.														
1						1			1		4	2		6
3						2		1			2	1		2
											3			2
5						4					5	5		3
7	1				2a.		3	4	5	5	5	4	2	4
						1		2						22
											3			2
														4

a Sentence deferred—Sentence remise.

TABLE I. OFFENCES AGAINST PROPERTY WITHOUT VIOLENCE. CLASS III.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.										USE OF LIQUORS. — USAGE DE LIQUEURS	
	Un- able to read or write.	Ele- men- tary.	Super- rior.	Under 16 years.	16 years and under 21.	21 years and under 40.	40 years and over.	Not given.			Mo- de- rate	Im- mo- de- rate			
				Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non- donné.							
				M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.					
	Inca- pable de lire ou d'é- crire.	Elé- men- taire.	Supé- rieure	— — —	— — —	— — —	— — —	— — —	— — —	— — —	Mo- dé- ré	Im- mo- dé- ré			
HORSE, CATTLE AND SHEEP STEALING— <i>Concluded.</i>															
Montréal, Qué.	3	1			1	3						4			
Richelieu, Qué.	1						1					1			
St. François, Qué.	1					1					1				
Terrebonne, Qué.		1						1			1				
Totaux de Québec.	6	3			1	5		2		1	2	7			
Brant, Ont.												1			
Bruce, Ont.		1			1							1			
Essex, Ont.		1			1						1	1			
Haldimand, Ont.		2				1					1	1			
Halton, Ont.		1				1					1				
Hastings, Ont.	4	2			3	2		1			4	2			
Kent, Ont.	1					1						1			
Lennox et Addington, Ont.	1	1				2						2			
Lincoln, Ont.															
Middlesex, Ont.		1				1						1			
Simcoe, Ont.	2	1		1	2						1	2			
Victoria, Ont.		2				2					2				
Wentworth, Ont.		1				1					1				
York, Ont.	1	7		3	1	3		1			4	4			
Totaux d'Ontario.	9	20		4	9	14		2			14	15			
Manitoba, Est.	1	2	1		1	3					1	3			
Victoria, Col.-B.															
Alberta, Nord, T. du N.-O.															
Alberta, Sud, T. du N.-O.	5				2	3					5				
Totaux des T. du N.-O.	5				2	3					5				
Totaux du Canada.	21	25	1	4	13	25		4		1	22	25			
LARCENY.															
Queen's, I. du P.-E.		7	1	2			4		2			5	3		
Annapolis, N.-E.	1	2			1	1		1			3				
Cap-Breton, N.-E.		2			2						2				
Colchester, N.-E.		3		1	2						3				
Cumberland, N.-E.		9				4				7		9			
Halifax, N.-E.	9	18	1	2	5	1	14	2	2	2	27	1			
Hants, N.-E.	1	1			1			1			2				
King's, N.-E.	2	2		2						2	4				

TABLEAU I. DÉLITS SANS VIOLENCE CONTRE LA PROPRIÉTÉ. CLASSE III.														
BIRTH PLACES. — LIEUX DE NAISSANCE.							RELIGIONS.						RESI- DENCE.	
BRITISH ISLES. — ILES BRITANNIQUES.			Can- ada.	United States — Etats- Unis.	Other Fo- reign Coun- tries. — Autr's pays étran- gers.	Other Bri- tish Pos- sessions. — Autr's pos- sessions Bri- tanniques.	Bap- tists. — Bap- tistes.	R. Ca- tho- lics. — Catho- liques.	Ch. of Eng- land. — Eglise d'An- gle- terre.	Me- tho- dists — Métho- dis- tes.	Pres- byte- rians. — Pres- byté- riens.	Pro- tes- tants — Autr's con- fes- sions.	Cities and Towns—Villes. Rural Districts—Districts ruraux.	
Eng- land and Wales — Angle terre et Galles	Ire- land. — Ir- lande.	Scot- land. — Ecos- se.												
VOL DE CHEVAUX, BÉTAIL ET MOUTONS—Fin.														
.....	3	.....	1	.....	.....	4	.....	.....	.....	.....	1	3
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	8	.....	1	.....	.....	9	.....	.....	.....	.....	2	7
.....
.....	1	.....	.....	.....	.....	.....	1	.....	.....	.....	1	.....
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	1	.....
.....	1	1	.....	.....	.....	1	.....	.....	.....	1	.....	2
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....
.....	5	1	.....	.....	.....	1	.....	2	.....	3	.....	6
.....	1	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	1	1
.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1
.....	1	.....	.....	.....	.....	1	.....
.....	1	.....	.....	.....	.....	.....	.....	.....	1	.....	1	2
.....	2	.....	.....	.....	.....	.....	.....	1	.....	.....	1	1
.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....	1	1
1	6	1	.....	.....	.....	2	5	1	.....	.....	7	1
1	1	.....	24	3	.....	.....	1	5	9	6	1	3	4	15
2	2	.....	.....	.....	.....	1	3	.....	.....	.....	2	2
.....
.....
.....	5	.....	.....	.....	.....	.....	.....	.....	.....	5	.....	5
.....
.....	5	.....	.....	.....	.....	.....	.....	.....	.....	5	.....	5
3	1	.....	39	3	1	.....	1	15	12	6	1	3	9	29
LARCIN.														
.....	1	.....	7	.....	.....	.....	.....	7	.....	.....	1	.....	5	3
.....
.....	3	.....	.....	.....	2	.....	1	.....	.....	.....	.....	3
.....	2	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	2
.....	3	.....	.....	.....	1	1	1	.....	.....	.....	2	1
.....	6	.....	.....	.....	.....	2	.....	4	.....	1	.....	9
3	2	.....	22	1	.....	.....	7	13	2	4	1	1	27	1
.....	2	.....	.....	.....	1	.....	.....	.....	1	.....	.....	2
.....	4	.....	.....	.....	.....	.....	.....	.....	.....	4	.....	4

TABLE I. OFFENCES AGAINST PROPERTY WITHOUT VIOLENCE. CLASS III.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDICIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Persons charged — Per- sonnes accu- sées.	Ac- quit- ted. — Ac- quit- tés.	De- tained for Lu- nacy. — Em- pri- son- nés pour cause de folie.	CONVICTIONS. — CONDAMNATIONS.				SENTENCE.		
				Total.	Con- victed 1st. — Con- dam- nés une fois.	Con- victed 2nd. — Con- dam- nés deux fois.	Reite- rated. — Plus de 2 réci- dive- s.	COMMITTED TO GOAL — EMPRISONNÉS.		
								With the option of a fine. — Sur option entre la pri- son ou l'a- m'nde	NO OPTION.	
									SANS OPTION	OPTION
									Un- der one year. — Moins d'un an.	One year and over. — Un an et plus.
LARCENY—Continued.										
Lunenburg, N.S.	1			1	1					
Pictou, N.S.	5			5	3	2				3
Queen's, N.S.	3			3	2	1				1
Victoria, N.S.	1	1								
Yarmouth, N.S.	7	1		6	6					5
Totals of Nova Scotia.	94	23		68	57	7	4		43	1
Albert, N.B.	1			1	1					
Carleton, N.B.	2			2	2					2
Charlotte, N.B.	1			1	1					1
Gloucester, N.B.	1			1	1					1
Northumberland, N.B.	4	1		3	3					3
Restigouche, N.B.	1			1	1					1
St. John, N.B.	39	21		18	17		1	2	10	
Sunbury, N.B.	1			1	1					1
Victoria, N.B.	1	1								
Westmoreland, N.B.	7	2		5	5					4
York, N.B.	13	3		10	7	2	1	4	6	
Totals of New Brunswick.	71	28		43	39	2	2	6	29	
Arthabaska, Que.	7			7	7					4
Beauce, Que.	1			1	1					1
Beauharnois, Que.	12	3		9	8		1			3
Bedford, Que.	6	1		5	5					4
Bonaventure, Que.	3			3	3					3
Gaspé, Que.	3			3	3					3
Joliette, Que.	3			3	2		1			2
Kamouraska, Que.	8			8	7	1				4
Montmagny, Que.	2			2	2					1
Montreal, Que.	*687	108		577	432	70	75	39	363	6
Quebec, Que.	52	7		45	44	1			23	1
Richelieu, Que.	19	4		15	14	1			10	
Rimouski, Que.	1			1	1				1	
St. Francis, Que.	24	3		21	21				15	
St. Hyacinthe, Que.	4	1		3	3			1	2	
Terrebonne, Que.	+25	14	1	7	6		1		7	
Three Rivers, Que.	\$29	8		13	8		5		8	
Totals of Quebec.	886	149	1	723	567	73	83	40	454	7
Algoma, Ont.	18	2		16	16				11	2
Brant, Ont.	83	18		65	63		2	12	36	
Bruce, Ont.	22	5		17	12	2	3		12	
Carleton, Ont.	93	27		66	58	5	3	2	53	6
Dufferin, Ont.	11	5		6	5	1			6	
Elgin, Ont.	31	8		23	23				14	
Essex, Ont.	46			39	38	1			25	1
Frontenac, Ont.	47	7		45	35	6	4	2	12	8

* 2 bail forfeited.
 † 2 cautionnement confisqué.

+ 1 left the country.
 † 1 a laissé le pays.

+ 2 nolle prosequi.
 § 8 nolle prosequi.

TABLEAU I. DÉLITS SANS VIOLENCE CONTRE LA PROPRIÉTÉ. CLASSE III.														
SENTENCE.					OCCUPATIONS.							CIVIL CONDITIONS. ÉTATS CIVILS.		
PENITENTIARY. — PÉNITENCIER.			D'th. — De mort	Com- mit- ted to Refor- ma- to- ries. — En- voyés à la prison de Réfor- me.	Other Senten- ces. — Autres Senten- ces.	Agricultural. — Agriculteurs.	Com- mer- cial. — Com- mer- çants.	Do- mestic — Servi- teurs.	Indus- trial. — Indus- triels.	Pro- fes- sional — Pro- fes- sions libé- rales.	La- borers — Jour- na- liers.	Mar- ried. — Mariés.	Wi- dowed — En- veu- vage.	Single — Céli- ba- taires.
Two years and un- der five.	Five years and over.	Life. — A vie												
Deux ans et m'ns de cinq.	Cinq ans et plus.													
LARCIN—Suite.														
1						1					2			1
2							1							5
1	1								1			1	1	1
					1a.				2		1	1		5
19	2				3a.	7	4	8	8	5	21	12	3	51
1											1			1
											1			2
											1			1
							1		2		1	3		1
1					5b.			1			1	2		16
														1
1											3	1		2
											10	1		9
3*					5b.		1	1	2		18	7		34
1				2		4	1	1			1	2		5
						1						1		
1	1			4			1				5	4		5
1						1	1				3	3		2
							1				2	2		1
							1				2	2		1
				1		1					2	1	1	1
				4		1		1			4	2		6
											2			2
25	11			69	64a.	6	83	15	141	3	159	121	40	416
1				7	13a.	11	11	2	8		11	10	3	32
4				1		2	2		2		4	7		8
							1							1
3				2	1a.		1		1		16	3		18
						1					1			3
						2			1		3	2	1	4
4				1			1		4		8	6	1	6
40	12			92	78a.	19	104	19	157	3	223	166	46	511
				2					3		13	6		16
				2	15a.	1	2	4	3		23	7		58
					5a.	4	1		1		3	2		14
8	1			1			5	7	12	2	19	19	2	45
						1					4			5
5				1	3a.	1	1		2		11	3		20
				2	11a.	2	2	1	8		14	10	2	26
3	2			1	17a.		6	5	6		20	13	1	30

7c-61 a { Sentence deferred.
{ Sentence remise b { Bound to good behaviour.
{ A tenir une meilleure conduite.

TABLE I. OFFENCES AGAINST PROPERTY WITHOUT VIOLENCE. CLASS III.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.										USE OF LIQUORS. — USAGE DE LIQUEURS	
	Un- able to read or write.	Ele- men- tary.	Sape- rior.	Under 16 years.	16 years and under 21.	21 years and under 40.	40 years and over.	Not given.	Mo- de- rate	Im- mo- de- rate					
				Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non donné.							
				M. F	M. F.	M. F.	M. F.	M. F.			M. F.				
	Inca- pable de lire ou d'é- crire.	Elé- men- taire.	Supé- rieure	M. F	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.			
LARCENY—Continued.															
Lunenburg, N.-E.		1					1						1		
Pictou, N.-E.		5			2		2	1					5		
Queen's N.-E.	1	1	1				1		1	1			1	2	
Victoria, N.-E.															
Yarmouth, N.-E.	1	5		2	2	1		1					6		
Totaux de la N.-Ecosse.	15	49	2	7	1	14	2	22	4	6	3	9	53	13	
Albert, N.-B.		1			1								1		
Carleton, N.-B.		2		1	1								2		
Charlotte, N.-B.		1					1						1		
Gloucester, N.-B.	1				1								1		
Northumberland, N.-B.							2	1							
Restigouche, N.-B.					1										
St. John, N.-B.	2	16		7			5	1	5				8	10	
Sunbury, N.-B.	1				1								1		
Victoria, N.-B.															
Westmoreland, N.-B.		3					2		1		2		3		
York, N.-B.		9		5	2		2		1				6	4	
Totaux du N.-Brunswick.	4	32		13	7		12	2	7		2		23	14	
Arthabaska, Qué.		7		2	1		4						7		
Beauce, Qué.	1						1						1		
Beauharnois, Qué.	4	4	1	4	1		2		2				8	1	
Bedford, Qué.		4	1		1		3		1				3	2	
Bonaventure, Qué.	2	1			1		2						3		
Gaspé, Qué.	2	1									3		2	1	
Joliette, Qué.	3			1			1		1				3		
Kamouraska, Qué.	7	1		3	1		3		1				7	1	
Montmagny, Qué.	2				1		1						1	1	
Montréal, Qué.	229	306	2	117	9	64	9	306	26	37	6	3	178	399	
Québec, Qué.	17	28		9	1	9	1	14	3	5	3		36	9	
Richelieu, Qué.	14	1		2		3		6		4			9	6	
Rimouski, Qué.		1								1			1		
St. François, Qué.	10	11		2		3		14		2			16	5	
St. Hyacinthe, Qué.	2	1			2		1						2	1	
Terrebonne, Qué.	3	4										6	1		
Trois-Rivières, Qué.	7	6		1	1		8	1	1		1		11	2	
Totaux de Québec.	303	376	4	141	12	86	10	366	30	55	9	13	1	294	429
Algoma, Ont.	1	15		1				13		2			11	5	
Brant, Ont.	19	44	2	27		13		16	2	7			61	4	
Bruce, Ont.	2	12		8		3		5				1	14	2	
Carleton, Ont.	18	48		21	1	7	1	22	2	10	1	1	47	19	
Dufferin, Ont.	1	4			3		2					1	3	2	
Elgin, Ont.	1	22		8		7		6		2			16	7	
Essex, Ont.	7	31		7	3	4		16		8		1	22	16	
Frontenac, Ont.	4	36		6	1	11	2	18	1	4	1	1	18	22	

TABLEAU I. DÉLITS SANS VIOLENCE CONTRE LA PROPRIÉTÉ. CLASSE III.															
BIRTH PLACES. LIEUX DE NAISSANCE.							RELIGIONS.						RESI- DENCE.		
BRITISH ISLES. — ILES BRITANNIQUES.			Canada.	United States — Etats-Unis.	Other Foreign Countries. — Autres pays étrangers.	Other British Possessions. — Autr's possessions Britanniques.	Baptists. — Baptistes.	R. Catholics. — Catholiques.	Ch. of Eng-land. — Eglise d'Angle-terre.	Methodists — Méthodistes.	Pres-byterians. — Pres-byté-riens.	Pro-tes-tants — Autr's con-fes-sions.	Other Deno-minations. — Autr's con-fes-sions.	Cities and Towns—Villes.	Rural Districts—Districts ruraux.
Eng-land and Wales — Angle terre et Galles	Ire-land. — Ir-lande.	Scot-land. — Ecos-se.													
.....													
LARCIN—Suite.															
.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	4	1
.....	.....	.....	5	.....	.....	.....	.....	.....	2	1	5	.....	.....	.....	1
.....	.....	.....	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3
.....	.....	.....	5	1	.....	.....	.....	1	4	.....	.....	1	.....	6	.....
3	2	.....	56	2	.....	.....	11	17	11	9	7	7	4	39	27
.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	2	.....	.....	.....	.....	.....	1	1	.....	.....	.....	2	1
.....	.....	.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....
.....	.....	.....	1	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	1	.....
.....	.....	.....	3	.....	.....	.....	.....	1	.....	.....	.....	1	.....	3	.....
1	.....	1	15	.....	1	.....	1	8	.....	7	2	.....	.....	17	1
.....	.....	.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....
.....	.....	.....	3	.....	.....	.....	1	1	.....	1	.....	.....	.....	4	1
2	.....	.....	7	.....	.....	.....	2	2	2	3	.....	.....	.....	6	4
3	.....	1	35	.....	1	.....	4	16	3	13	2	1	.....	35	8
.....	.....	.....	7	.....	.....	.....	.....	7	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	7
1	.....	.....	7	1	.....	.....	.....	1	.....	.....	.....	.....	.....	4	1
.....	.....	.....	4	.....	.....	.....	.....	2	2	.....	.....	.....	.....	1	5
.....	.....	.....	2	.....	.....	.....	.....	2	.....	2	1	.....	.....	4	4
.....	.....	.....	2	.....	1	.....	.....	3	.....	.....	.....	.....	.....	.....	3
.....	.....	.....	2	.....	1	.....	.....	3	.....	.....	.....	.....	.....	.....	3
.....	.....	.....	7	.....	.....	.....	.....	8	.....	.....	.....	.....	.....	1	2
1	.....	.....	2	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	5	3
21	18	4	517	7	9	1	5	502	29	11	7	4	9	527	41
1	1	.....	42	.....	1	.....	.....	43	.....	.....	.....	.....	.....	33	12
.....	.....	.....	15	.....	.....	.....	.....	15	.....	.....	.....	2	.....	5	10
.....	.....	.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	1
3	1	.....	12	3	2	.....	.....	14	.....	.....	.....	7	.....	8	13
.....	.....	.....	3	.....	.....	.....	.....	3	.....	.....	.....	.....	.....	1	2
1	.....	.....	6	.....	.....	.....	.....	6	.....	.....	.....	1	.....	.....	7
.....	1	.....	12	.....	.....	.....	.....	13	.....	.....	.....	.....	.....	7	6
29	21	4	643	11	14	1	5	633	31	13	8	14	9	592	122
1	.....	.....	14	1	.....	.....	.....	14	.....	.....	.....	2	.....	5	11
5	.....	.....	52	2	2	.....	5	20	.....	.....	.....	.....	.....	51	14
.....	4	.....	14	.....	.....	.....	4	5	14	10	10	6	.....	9	7
3	1	.....	56	2	4	.....	.....	42	.....	1	6	.....	.....	65	1
2	.....	.....	4	.....	.....	.....	.....	.....	3	1	.....	22	1	.....	5
2	.....	.....	20	.....	1	.....	2	8	2	8	1	.....	.....	17	6
1	1	.....	23	13	.....	.....	2	11	5	17	2	.....	1	27	12
4	3	2	34	1	.....	.....	.....	18	.....	.....	.....	26	.....	43	1

TABLE I. OFFENCES AGAINST PROPERTY WITHOUT VIOLENCE. CLASS III.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDICIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Persons charged. — Personnes accu- sées.	Ac- quit- ted. — Ac- quit- tés.	De- tained for Lu- nacy. — Em- pri- son- nés pour cause de folie.	CONVICTIONS. — CONDEMNATIONS.			SENTENCE.			
							COMMITTED TO GAOL — EMPRISONNÉS.			
				Total.	Con- victed 1st.	Con- victed 2nd.	Reite- rated.	With the option of a fine. — Sur option entre la pri- son ou l'a- m'nde	NO OPTION. — SANS OPTION.	One year and over.
					Con- dam- nés une fois.	Con- dam- nés deux fois.	Plus de 2 rédi- ves.	Moins d'un an.	Un an et plus.	
LARCENY—Continued.										
Grey, Ont.....	23	7	.....	16	15	1	.....	16	.....
Haldimand, Ont.....	16	5	.....	11	10	.....	1	11	.....
Halton, Ont.....	10	.....	.....	10	9	.....	1	5	.....
Hastings, Ont.....	56	27	.....	29	26	1	2	13	2
Huron, Ont.....	16	9	.....	7	5	1	1	4	.....
Kent, Ont.....	36	17	.....	19	18	1	.....	14	2
Lambton, Ont.....	35	8	.....	27	27	.....	.....	7	1
Lanark, Ont.....	4	.....	.....	4	4	.....	.....	1	1
Leeds and Grenville, Ont.....	24	5	.....	19	19	.....	.....	3	2
Lennox and Addington, Ont.....	7	.....	.....	7	6	1	.....	4	1
Lincoln, Ont.....	16	2	.....	14	14	.....	.....	6	.....
Middlesex, Ont.....	68	11	.....	57	51	3	3	34	2
Norfolk, Ont.....	7	.....	.....	7	6	1	.....	7	.....
Northumberland & Durham, O.....	38	5	.....	33	30	3	.....	16	1
Ontario, Ont.....	27	14	.....	13	9	1	3	5	.....
Oxford, Ont.....	116	3	.....	12	11	.....	1	7	2
Peel, Ont.....	7	2	.....	5	3	1	1	4	.....
Perth, Ont.....	5	.....	.....	5	5	.....	.....	4	.....
Peterborough, Ont.....	14	3	.....	11	11	.....	.....	1	.....
Prescott and Russell, Ont.....	2	.....	.....	2	2	.....	.....	2	.....
Prince Edward, Ont.....	1	.....	.....	1	1	.....	.....	1	.....
Renfrew, Ont.....	18	4	.....	14	13	1	.....	11	.....
Simcoe, Ont.....	27	3	.....	24	21	3	.....	13	1
Stormont, D'das & Glengarry, O.....	8	3	.....	5	5	.....	.....	2	.....
Thunder Bay, Ont.....	19	13	.....	6	5	1	.....	5	.....
Victoria, Ont.....	23	5	.....	18	17	.....	1	6	6
Waterloo, Ont.....	23	6	.....	17	12	2	3	6	3
Welland, Ont.....	43	21	.....	22	19	2	1	14	3
Wellington, Ont.....	16	9	.....	7	5	1	1	3	1
Wentworth, Ont.....	164	73	.....	91	80	2	9	32	10
York, Ont.....	*720	270	.....	449	447	1	1	289	13
Totals of Ontario.....	1,840	599	1,239	1,156	42	41	40	721	69
Manitoba, Central.....	10	7	.....	3	3	.....	.....	2	.....
Manitoba, Eastern.....	+50	11	.....	37	29	7	1	26	.....
Manitoba, Western.....	9	2	.....	7	6	1	.....	5	.....
Totals of Manitoba.....	69	20	.....	47	38	8	1	33	.....
Cariboo, B.C.....	2	.....	.....	2	2	.....	.....	.....	1
Clinton, B.C.....	12	6	.....	6	6	.....	.....	4	1
New Westminster, B.C.....	19	4	.....	15	15	.....	.....	13	1
Victoria, B.C.....	*30	4	.....	25	24	1	.....	21	3
Totals of British Columbia.....	63	14	.....	48	47	1	.....	38	6
Alberta, Northern, N.W.T.....	17	7	.....	10	10	.....	.....	8	1
Alberta, Southern, N.W.T.....	\$11	4	.....	6	5	1	.....	6	.....
Assiniboia, Eastern, N.W.T.....	7	.....	.....	7	7	.....	.....	5	.....
Assiniboia, Western, N.W.T.....	6	.....	.....	6	6	.....	.....	.....	3

+ f1 jury disagreed.

+ (1 le juré ne s'est pas accordé.

* f1 absconded.

(1 a laissé le pays.

+ { 2 left the country ; bail forfeited. \$1 nolle prosequi.

{ 2 ont laissé le pays, cautionnement confisqué.

TABLEAU I. DÉLITS SANS VIOLENCE CONTRE LA PROPRIÉTÉ. CLASSE III.														
SENTENCE.						OCCUPATIONS.						CIVIL CONDITIONS.		
PENITENTIARY. — PÉNITENCIER.			D'th. — De mort.	Com- mitted to Refor- ma- to- ries — En- voyés à la prison de Réfor- me.	Other Senten- ces. — Autres Senten- ces.	Agricultural. — — Agriculteurs.	Com- mercial. — — Com- mer- çants.	Do- mestic — — Servi- teurs.	In- dus- trial. — — Indus- triels.	Pro- fes- sional — — Pro- fes- sions libé- rales.	La- borers — — Jour- na- liers.	Mar- ried. — — Mariés.	Wi- dowed — — En- veu- vage.	Single — — Céli- ba- taires.
Two years and un- der five. — D'ux ans et m'ns de cinq.	Five years and over. — Cinq ans et plus.	Life. — A vie												
LARCIN—suite.														
				1		2			1		12	3	2	11
					4a.				2		6	2		6
2				1	10a.	1	1	1	2		2	2	1	7
	2				1a.	3	2		8		10	7	2	20
1				1	1a.				2				1	6
1				2	16a.	2			3		13	4	1	14
					2a.		1	1	1		17	3		21
	2				12a.	1	1		1		1		1	3
					2a.	1	1		2		4	2	1	16
					8a.						4	2		2
1	2			3	14a.	2	3	4	7	1	9			14
						3					24	6	1	40
				3	8a.	1		2	6		3	6		
1				1	6a.		1	1	2		13	6		27
				3			1	1			6	4		9
					1a.				1		6	5		7
					1a.	2			2		3	2		3
				1	2a.		1	1	1		1	1	1	3
											4	2		9
									1					1
2				1		2			1		7	1		12
2				2	6a.	1					13	2		10
				2	1a.			1	1		2		1	4
1									1		5	1		5
					6a.		2				9			11
3	1			1	3a.		2	2	3		10	4		13
	1			2	2a.	1		1	5		13	3	3	15
					3a.		1		2		4	1		6
4	1			1	27a.		2	3	14		45	23	1	67
18	1			23	85a, 20b.	3	26	43	11	2	208	75	1	373
47	13			57	272a, 20b.	34	62	78	115	5	561	227	22	949
					1a.	1					1	1		2
2	1				8a.	1	4	2	11	1	13	8		29
2						1			2		4	2		5
4	1				9a.	3	4	2	13	1	18	11		36
1								1			1			
1							1	1			4			6
1								1	3		6	1		10
1							8	2	6		7	3		22
4							9	5	9		18	4		38
1									1		3	1		3
1	1					2	1			1	3	1		4
1					2a.							2		2

a { Sentence deferred.
Sentence remise.

b { Bound to good behaviour.
A tenir une meilleure conduite.

TABLE I. OFFENCES AGAINST PROPERTY WITHOUT VIOLENCE. CLASS III.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.										USE OF LIQUORS. — USAGE DE LIQUEURS			
	Un- able to read or write. Inca- pable de lire ou d'é- crire.	Ele- men- tary. Elé- men- taire.	Supe- rior. Supé- rieure	Under 16 years.	16 years and under 21.	21 years and under 40.	40 years and over.	Not given.	Mo- de- rate	Im- mo- de- rate							
				Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non- donné.									
				M.	F.	M.	F.	M.			F.	M.	F.	M.	F.	M.	F.
				—	—	—	—	—			—	—	—	—	—	—	—
LARCENY—Continued.																	
Grey, Ont.		16		2	7	5			11	5							
Haldimand, Ont.	3	5		6	6	1		3	4	4							
Halton, Ont.	2	8		5	1	1		3	7	3							
Hastings, Ont.	7	21	1	7	6	1	5	1	17	9							
Huron, Ont.		7			3	3		1	1	6							
Kent, Ont.	3	16		1	6	1	5	6	9	10							
Lambton, Ont.	8	16		6	6	1	9	2	23	1							
Lanark, Ont.		3			1	2		1	3	1							
Leeds et Grenville, Ont.	8	11		10	1	3		5	12	7							
Lennox et Addington, Ont.	1	3				4			2	2							
Lincoln, Ont.	2	12		8	3	3			11	3							
Middlesex, Ont.	9	45		10	13	1	20	4	39	15							
Norfolk, Ont.	5	1				3		3	3	3							
Northumberl'd et Durham, O.	4	26	3	10	8	11	1	2	24	9							
Ontario, Ont.		13		2	1	2		6	8	5							
Oxford, Ont.	3	9		2	3	1	3	3	7	5							
Peel, Ont.	5	1		1	2	2		2	4	1							
Perth, Ont.	1	4		1	2	2			4	1							
Peterborough, Ont.	1	11		4	1	1	3	2	7	4							
Prescott et Russell, Ont.																	
Prince-Edouard, Ont.		1			1				1								
Renfrew, Ont.	5	8		4	3	6	1		5	8							
Simcoe, Ont.	8	12		6	7	6		1	8	12							
Storm't, D'das et Gleng'ry, O	1	4		2		1	1	1	4	1							
Thunder Bay, Ont.	3	3			1	3		2	2	4							
Victoria, Ont.	1	10		3	5	3			7	7							
Waterloo, Ont.	2	15			6	1	5	1	11	6							
Welland, Ont.		21		2	6	10		3	16	5							
Wellington, Ont.		7			4	3			6	1							
Wentworth, Ont.	8	83		32	21	29	3	6	68	20							
York, Ont.	112	326	11	125	3	90	9	125	307	142							
Totaux d'Ontario.	250	934	17	321	10	262	19	380	823	374							
Manitoba, Centre.		3				3			2	1							
Manitoba, Est.	5	31	1	5	8	20	1	3	16	21							
Manitoba, Ouest.		7			3	4			5	2							
Totaux de Manitoba.	5	41	1	5	11	27	1	3	23	24							
Cariboo, Col.-B.									2								
Clinton, Col.-B.		6			2	4				4	2						
New-Westminster, Col.-B.	1	10				5		5	11								
Victoria, Col.-B.	10	15				20		4	12	12							
Totaux de la Col.-Britann.	11	31			2	29		9	27	14							
Alberta, Nord, T. du N.-O.		3	1		2	2			6	4							
Alberta, Sud, T. du N.-O.		3	2		2	2		1	1	5							
Assiniboia, Est, T. du N.-O.									7								
Assiniboia Ouest, T. du N.-O.									6								

TABLE I. OFFENCES AGAINST PROPERTY WITHOUT VIOLENCE. CLASS III.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDICIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Persons charged. — Per- sonnes accu- sées.	Ac- quit- ted. — Ac- quit- tés.	De- tained for Lu- nacy. — Em- pri- son- nés pour cause de folie.	CONVICTIONS. — CONDAMNATIONS.			SENTENCE.			
				Total.	Con- victed 1st. — Con- dam- nés une fois.	Con- victed 2nd. — Con- dam- nés deux fois.	Reite- rated. — Plus de 2 réci- des.	COMMITTED TO GAOL — EMPRISONNÉS.		
								With the option of a fine. — Sur option entre la pri- son ou l'a- m'nde	NO OPTION. — SANS OPTION.	— Under one year. — Moins d'un an.	One year and over. — Un an et plus.
LARCENY—Concluded.										
Saskatchewan, N.-W.T.....	2	.....	.....	2	2	.....	.....	2	.....
Totals of the N.W.T.....	43	11	.....	31	30	1	.....	21	4
Totals of Canada.....	3,084	854	1	2,207	1,941	135	131	86	1,346 87	
FELONIOUSLY RECEIVING.										
Queen's, P.E.I.	3	.....	.....	3	2	1	.....	2	.....
Digby, N.S.....	1	.....	.....	1	1	.....	.....	1	.....
Halifax, N.S.....	2	.....	.....	2	1	1	.....	2	.....
Totals of Nova Scotia.....	3	.....	.....	3	2	1	.....	3	.....
Iberville, Que.....	1	.....	.....	1	1	.....	.....	.....	.....
Montreal, Que.....	20	6	.....	14	10	3	1	8	.....
Quebec, Que.....	9	3	.....	6	3	.....	3	3	.....
Rimouski, Que.....	1	.....	.....	1	1	.....	.....	1	.....
Terrebonne, Que.....	*4	2	.....	1	1	.....	.....	1	.....
Totals of Quebec.....	35	11	.....	23	16	3	4	13	.....
Brant, Ont.....	2	1	.....	1	1	.....	.....	1	.....
Carleton, Ont.....	1	.....	.....	1	1	.....	.....	1	.....
Halton, Ont.....	1	.....	.....	1	1	.....	.....	.....	.....
Kent, Ont.....	1	1	.....	.....	.....	.....	.....	.....	.....
Leeds and Grenville Ont.....	1	1	.....	.....	.....	.....	.....	.....	.....
Middlesex, Ont.....	2	2	.....	.....	.....	.....	.....	.....	.....
Ontario, Ont.....	1	.....	.....	1	1	.....	.....	1	.....
Prescott and Russell, Ont.....	2	1	.....	1	1	.....	.....	1	.....
Renfrew, Ont.....	1	.....	.....	1	1	.....	.....	1	.....
Welland, Ont.....	4	2	.....	2	2	.....	.....	1	1
Wentworth, Ont.....	4	2	.....	2	.....	.....	2	.....	.....
York, Ont.....	27	13	.....	14	14	.....	.....	6	3
Totals of Ontario.....	47	23	.....	24	22	.....	2	12	4
Manitoba, Eastern.....	4	1	.....	3	2	.....	1	1	.....
Clinton, B.C.....	1	.....	.....	1	1	.....	.....	.....	.....
New Westminster, B.C.....	2	.....	.....	2	2	.....	.....	.....	1
Victoria, B.C.....	2	.....	.....	2	1	1	.....	1	.....
Totals of British Columbia.....	5	.....	.....	5	4	1	.....	1	1
Alberta, Northern, N.W.T.....	4	.....	.....	4	4	.....	.....	2	.....
Alberta, Southern, N.W.T.....	1	.....	.....	1	1	.....	.....	1	.....

*1 nolle prosequi.

TABLEAU I. DÉLITS SANS VIOLENCE CONTRE LA PROPRIÉTÉ. CLASSE III.														
SENTENCE.						OCCUPATIONS.						CIVIL CONDITIONS.		
PENITENTIARY. — PÉNITENCIER.			D'th. — De mort	Com- mit- ted to Refor- ma- to- ries. En- voyés à la prison de Réfor- me.	Other Senten- ces. Autres Senten- ces.	Agricultural. — Agriculteurs.	Com- mer- cial. — Com- mer- çants.	Do- mestic — Servi- teurs.	In- dus- trial. — In- dus- triels.	Pro- fes- sional — Pro- fes- sions libé- rales.	La- borers — Jour- na- liers.	Mar- ried. — Ma- riés.	Wi- dowed — En- veu- rage.	Single — Céli- ba- taires.
Two years and un- der five. — Deux ans et m'ns de cinq.	Five years and over. — Cinq ans et plus.	Life. — A vie												
LARCIN—Fin.														
3	1				2a.	2	1		1	1	6	4		11
121	29			149	364a, 25b.	66	185	113	306	15	869	433	71	1,636
RECEL.														
1							3					2		1
								1			1	1		1
								1			1	1		2
1											1			1
3	1				2a.		1	3	3		6	6		8
3									3	1	2	4		2
											1	1		
											1	1		
7	1				2a.		1	3	6	1	11	12		11
									1					1
					1a.						1	1		1
							1	1				1	1	
											1	1		
							1	1			1			2
1	2				4a.	1	3	5	1		3	8		6
1					5a.	5	7		3		6	12		12
1					1a.					1	2			3
	1								1					1
1									1		1			2
2	1								2		1			3
2						4								4
						1								1

a { Sentence deferred.
Sentence remise.

b { Bound to good behaviour.
A tenir une meilleure conduite.

TABLE I. OFFENCES AGAINST PROPERTY WITHOUT VIOLENCE. CLASS III.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ETÉ COMMISE.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.								USE OF LIQUORS. — USAGE DE LIQUEURS	
	Un- able to read or write.	Ele- men- tary.	Super- ior.	Under 16 years. — Moins de 16 ans.	16 years and under 21. — 16 ans et moins de 21.	21 years and under 40. — 21 ans et moins de 40.	40 years and over. — 40 ans et plus.	Not given. — Non- donné.				Mo- de- rate	Im- mo- de- rate
	—	—	—										
	Inca- pable de lire ou d'é- crire.	Elé- men- taire.	Supé- rieure	M. F	M. F	M. F	M. F	M. F	M. F	M. F	M. F	Mo- dé- ré	Im- mo- dé- ré

LARCENY—*Concluded.*

Saskatchewan, T. du N.-O....	2			2								2	
Totaux des T. du N.-O....	2	6	3	2	4	4	1	20		11			
Totaux du Canada.....	590	1,476	28	491	23	386	31	844	84	229	32	86	1,259

FELONIOUSLY RECEIVING.

Queen's, I. du P.-E.....		2	1				2		1			1	2
Digby, N.-E.....		1			1							1	
Halifax, N.-E.....		2						2				2	
Totaux de la N.-Ecosse.....		3			1			2				3	
Iberville, Qué.....		1			1								1
Montréal, Qué.....	7	7			2	1	8	3				2	12
Québec, Qué.....	1	5			1		5					3	3
Rimouski, Qué.....		1						1				1	
Terrebonne, Qué.....	1								1			1	
Totaux de Québec.....	9	14			4	1	13	4		1		7	16
Brant, Ont.....		1					1					1	
Carleton, Ont.....		1					1						1
Halton, Ont.....	1			1								1	
Kent, Ont.....													
Leeds et Grenville, Ont.....													
Middlesex, Ont.....													
Ontario, Ont.....		1						1				1	
Prescott et Russell, Ont.....		1							1			1	
Renfrew, Ont.....		1					1						1
Welland, Ont.....		2			1	1						2	
Wentworth, Ont.....		2				2							2
York, Ont.....	2	12		1	4	5	2	2				13	1
Totaux d'Ontario.....	3	21		2	5	11	2	3		1		19	5
Manitoba, Est.....		2	1				3						3
Clinton, Col.-B.....			1					1				1	
New-Westminster, Col.-B.....									2				
Victoria, Col.-B.....	1	1			1	1						2	
Totaux de la Col.-Britann.....	1	1	1		1	1		1		2		3	
Alberta, Nord, T. du N.-O.....		4					2	2				4	
Alberta, Sud, T. du N.-O.....		1					1					1	

TABLEAU I. DÉLITS SANS VIOLENCE CONTRE LA PROPRIÉTÉ. CLASSE III.																
BIRTH PLACES. LIEUX DE NAISSANCE.							RELIGIONS.							RESI- DENCE.		
BRITISH ISLES. — ILES BRITANNIQUES.			Ca- nada.	United States — Etats- Unis.	Other Fo- reign Coun- tries. — Autr's posses- sions Bri- tanni- ques.	Other Bri- tish Pos- ses- sions. — Autr's posses- sions Bri- tanni- ques.	Bap- tists. — — Bap- tistes.	R. Ca- tho- lics. — — Catho- liques.	Ch. of Eng- land. — — Eglise d'An- gle- terre.	Me- tho- dists. — — Métho- distes.	Pres- byte- rians. — — Pres- byté- riens.	Pro- tes- tants — — Autr's con- fes- sions.	Cities and Towns — Villes. Rural Districts — Districts ruraux.			
Eng- land and Wales — Angle terre et Galles	Ire- land. — Ir- lande.	Scot- land. — Ecos- se.			Autr's posses- sions Bri- tanni- ques.	Autr's posses- sions Bri- tanni- ques.	Bap- tists.	R. Ca- tho- lics.	Ch. of Eng- land.	Me- tho- dists.	Pres- byte- rians.	Pro- tes- tants	Other Deno- mina- tions. — Autr's con- fes- sions.	Cities and Towns — Villes.	Rural Districts — Districts ruraux.	
.....
.....	2	.....	.....	.....	1	1	.....	.....	.....	.....	.....	2		
2	5	4	.....	.....	1	3	4	.....	3	.....	9	9		
200	124	38	1,618	106	54	5	49	1089	402	248	141	143	60	1781	379	
LARCIN—Fin.																
.....	3	.....	.....	.....	.....	.....	1	.....	2	.....	3	.....	
.....	1	1	.....	1	.....	1	.....	1	1	.....	1	1		
.....	1	1	.....	1	.....	1	.....	1	1	.....	2	1		
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	1	.....	
.....	1	.....	11	1	1	.....	11	2	.....	.....	.....	1	13	1
.....	5	1	.....	.....	6	.....	.....	.....	.....	.....	4	2		
.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	1		
.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	1		
.....	1	.....	19	2	1	.....	20	2	.....	.....	.....	1	18	5
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	1	1	.....	
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	1	.....	
.....		
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	1	.....	
1	1	.....	.....	.....	1	.....	1	.....	.....	.....	1	1		
.....	2	1	.....	.....	.....	2	1	.....	.....	1	2	.....	
1	1	.....	8	.....	4	.....	3	6	2	1	.....	2	11	3
2	1	.....	16	1	4	.....	6	9	3	1	1	4	19	5
2	1	.....	.....	.....	2	.....	1	.....	.....	2	1		
.....	1	.....	.....	.....	.....	.....	.....	1	.....	.....	1		
.....	2	.....	.....	.....	.....	.....	1	.....	.....	1	2	.....	
.....	1	1	1		
.....	2	1	.....	.....	.....	.....	1	.....	1	1	3	2		
.....	2	2	.....	.....	.....	.....	.....	2	2	.....	.....	3	1	
.....	1	.....	.....	.....	.....	.....	.....	1	.....	.....	1	1		

TABLE I. OFFENCES AGAINST PROPERTY WITHOUT VIOLENCE. CLASS III.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDICIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Persons charged.	Ac- quit- ted.	De- tained for Lu- nacy.	CONVICTIONS. — CONDAMNATIONS.				SENTENCE.		
				Total.	Con- victed 1st.	Con- victed 2nd.	Reite- rated.	COMMITTED TO GAOL — EMPRISONNÉS.		
								With the option of a fine. — Sur option entre la pri- son ou l'a- m'nde	No OPTION.	
									SANS OPTION.	—
	Per- sonnes accu- sées.	Ac- quit- tés.	Em- pri- son- nés pour cause de folie.		— Con- dam- nés une fois.	— Con- dam- nés deux fois.	— Plus de 2 réci- ves.		Un- der one year. — Moins d'un an.	One year and over. — Un an et plus.
FELONIOUSLY RECEIVING— <i>Concluded.</i>										
Assiniboia, Western, N.W.T...	3	.....	.....	3	3	.....	.....	.....	.....	2
Totals of the N.W.T.....	8	.....	.....	8	8	.....	.....	.....	3	2
Totals of Canada	105	35	.....	69	56	6	7	.....	35	7
EMBEZZLEMENT.										
Joliette, Que.....	1	.....	.....	1	.....	1	.....	.....	.....	.....
Montreal, Que.....	14	5	.....	9	9	.....	.....	.....	4	.....
Quebec, Que.....	1	.....	.....	1	1	.....	.....	.....	.....	.....
Richelieu, Que.....	2	.....	.....	2	2	.....	.....	.....	1	.....
St. Francis, Que.....	1	.....	.....	1	1	.....	.....	.....	.....	.....
Three Rivers, Que.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....
Totals of Quebec.....	20	6	.....	14	13	1	.....	.....	5	.....
Algoma, Ont.....	1	.....	.....	1	1	.....	.....	.....	1	.....
Brant, Ont.....	1	.....	.....	1	1	.....	.....	.....	.....	.....
Essex, Ont.....	2	1	.....	1	1	.....	.....	.....	.....	.....
Huron, Ont.....	2	2	.....	.....	.....	.....	.....	.....	.....	.....
Kent, Ont.....	3	3	.....	.....	.....	.....	.....	.....	.....	.....
Lanark, Ont.....	1	.....	.....	1	1	.....	.....	.....	.....	.....
Ontario, Ont.....	1	.....	.....	1	1	.....	.....	.....	.....	1
Oxford, Ont.....	1	.....	.....	1	1	.....	.....	.....	1	.....
Perth, Ont.....	1	.....	.....	1	1	.....	.....	.....	.....	.....
Renfrew, Ont.....	2	1	.....	1	1	.....	.....	.....	.....	.....
Victoria, Ont.....	3	3	.....	.....	.....	.....	.....	.....	.....	.....
Waterloo, Ont.....	2	.....	.....	2	2	.....	.....	.....	1	.....
Wentworth, Ont.....	8	3	.....	5	4	1	.....	.....	1	3
York, Ont.....	12	4	.....	8	8	.....	.....	.....	3	1
Totals of Ontario...	40	17	.....	23	22	1	.....	.....	7	5
Manitoba, Eastern.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....
Clinton, B.C.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....
Victoria, B.C.....	1	.....	.....	1	1	.....	.....	.....	1	.....
Totals of British Columbia.	2	1	.....	1	1	.....	.....	.....	1	.....
Alberta, Southern, N.W.T.....	1	.....	.....	1	1	.....	.....	.....	1	.....
Totals of Canada.....	64	25	.....	39	37	2	.....	.....	14	5
FRAUD.										
King's, N.S.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....
Pictou, N.S.....	1	.....	.....	1	1	.....	.....	.....	.....	.....
Totals of Nova Scotia.....	2	1	.....	1	1	.....	.....	.....	.....	.....

TABLEAU I. DÉLITS SANS VIOLENCE CONTRE LA PROPRIÉTÉ.												CLASSE III.		
SENTENCE.						OCCUPATIONS.						CIVIL CONDITIONS. ÉTATS CIVILS.		
PENITENTIARY. — PÉNITENCIER.			D'th. — De mort	Com- mit- ted to Refor- ma- to- ries. — En- voyés à la prison de Réfor- me.	Other Senten- ces. — Autres Senten- ces.	Agricultural. — Agriculteurs.	Com- mer- cial. — Com- mer- çants.	Do- mestic — Servi- teurs.	In- dus- trial. — In- dus- triels.	Pro- fes- sional — Pro- fes- sions libé- rales.	La- borers — Jour- na- liers.	Mar- ried. — Ma- riés.	Wi- dowed — En- veu- vage.	Single — Céli- ba- taires.
Two years and un- der five. — D'ux ans et m'ns de cinq	Five years and over. — Cinq ans et plus.	Life. — A vie												
RECEL—Fin.														
.....	1a.	.....	.....	.....	.....	.....	.....	.....	.....	.....
2	1a.	5	.....	.....	.....	.....	.....	.....	.....	5
14	4	.....	.....	.....	9a.	10	11	4	11	2	21	27	.....	37
DÉTOURNEMENT.														
1	1a.	.....	1	.....	.....	.....	.....	1	.....	8
.....	4a.	.....	7	2	.....	.....	.....	1	.....	1
.....	1a.	.....	1	.....	.....	.....	.....	.....	.....	1
1	1a.	.....	2	.....	.....	.....	.....	1	.....	1
2	7a.	.....	11	2	.....	.....	.....	1	3	11
.....	1	.....	.....	.....	.....	1	.....	.....
.....	1a.	.....	.....	.....	.....	.....	.....	1	.....	1
.....	1a.	.....	.....	.....	.....	.....	.....	.....	.....	.....
1	1	.....	.....	.....	.....	1	.....	1
.....	1	.....	.....	.....	.....	1	.....	.....
.....	1	.....	.....	.....	1a.	.....	1	.....	.....	.....	.....	1	.....	.....
.....	1	.....	.....	.....	.....	1	.....	1
.....	1a.	.....	1	.....	.....	.....	.....	1	.....	1
.....	1a.	.....	2	.....	.....	.....	.....	1	.....	4
.....	4a.	.....	7	.....	.....	.....	.....	2	.....	6
1	1	.....	.....	.....	9a.	.....	14	.....	.....	.....	.....	7	9	13
.....	1	.....	.....	.....	.....	.....	.....	1
.....	1	.....	.....	.....	.....	.....	.....	1
.....	1	.....	.....	.....	.....	1
3	1	.....	.....	.....	16a.	.....	26	2	.....	1	8	12	.....	26
FRAUDE.														
1	1
1	1

a Sentence deferred.—Sentence remise.

TABLE I. OFFENCES AGAINST PROPERTY WITHOUT VIOLENCE. CLASS III.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDI- CIAIRES OU L'OFFENCE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.										USE OF LIQUORS.	
	Un- able to read or write. — Inca- pable de lire ou d'é- crire.	Ele- men- tary. — Elé- men- taire.	Super- ior. — Supé- rieure	Under 16 years. — Moins de 16 ans.	16 years and under 21. — 16 ans et moins de 21.	21 years and under 40. — 21 ans et moins de 40.	40 years and over. — 40 ans et plus.	Not given. — Non- donné.	Mo- de- rate — Mo- dé- ré	Im- mo- de- rate — Im- mo- dé- ré					
				M.	F.	M.	F.	M.			F.	M.	F.	M.	F.
				H.	F.	H.	F.	H.			F.	H.	F.	H.	F.
				—	—	—	—	—			—	—	—	—	—
FELONIOUSLY RECEIVING— <i>Concluded.</i>															
Assiniboia, Ouest, T. du N.-O.	3	.....	.....	.....	.....	.....
Totaux des T. du N.-O.	5	.....	.....	.....	3	.....	2	3	.....	5	.....	.....	.....
Totaux du Canada.....	13	48	3	2	11	1	33	2	11	2	7	38	26	.....
EMBEZZLEMENT.															
Joliette, Qué.	1	.....	.....	1	.....	.....	.....	.....	.....	1	.....	.....
Montréal, Qué.	9	.....	1	4	4	.....	.....	.....	.....	3	6	.....	.....
Québec, Qué.	1	.....	.....	.....	.....	.....	1	.....	.....	1	.....	.....	.....
Richelieu, Qué.	2	.....	.....	.....	1	.....	1	.....	.....	2	.....	.....	.....
St. François, Qué.	1	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....	.....	.....
Trois-Rivières, Qué.	
Totaux de Québec.....	1	12	1	1	5	6	.....	2	.....	.....	8	6	.....	.....
Algoma, Ont.	1	.....	.....	.....	1	.....	.....	.....	.....	1	.....	.....	.....
Brant, Ont.	1	.....	.....	.....	.....	.....
Essex, Ont.	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....	.....
Huron, Ont.	
Kent, Ont.	
Lanark, Ont.	1	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....	.....
Ontario, Ont.	1	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....	.....
Cxford, Ont.	1	.....	.....	.....	.....	.....	1	.....	.....	.....	1	.....	.....
Perth, Ont.	1	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....	.....
Renfrew, Ont.	1	.....	.....	.....	.....	.....	1	.....	.....	.....	1	.....	.....
Victoria, Ont.	
Waterloo, Ont.	2	.....	.....	.....	2	.....	.....	.....	.....	.....	2	.....	.....
Wentworth, Ont.	5	.....	.....	2	3	.....	.....	.....	.....	.....	3	2	.....
York, Ont.	2	6	1	2	5	.....	.....	.....	.....	.....	8	.....	.....
Totaux d'Ontario.	1	15	6	1	4	15	.....	2	.....	1	15	7	.....	.....
Manitoba, Est	
Clinton, Col.-B.	
Victoria, Col.-B.	1	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....	.....
Totaux de la Col.-Britann.	1	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....	.....
Alberta, Sud, T. du N.-O.	1	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....	.....
Totaux du Canada	2	29	7	2	9	23	.....	4	.....	1	24	14	.....	.....
FRAUD.															
King's, N.-E.	1	.....	.....	.....	.....	.....	.....	1	.....	.....
Pictou, N.-E.	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Totaux de la N.-Ecosse.	1	.....	.....	1	.....	.....	.....	.....	.....	.....	1	.....	.....

TABLEAU I. DÉLITS SANS VIOLENCE CONTRE LA PROPRIÉTÉ. CLASSE III.

BIRTH PLACES. LIEUX DE NAISSANCE.							RELIGIONS.							RESI- DENCE.	
BRITISH ISLES. — ILES BRITANNIQUES.			Canada.	United States — Etats-Unis.	Other Foreign Countries. — Autres pays étrangers.	Other British Possessions. — Autres possessions Britanniques.	Bap- tists. — Bap- tistes.	R. Ca- tholics. — Catho- liques.	Ch. of Eng- land. — Eglise d'An- gle-terre.	Me- tho- dists. — Mé- tho- dis- tes.	Pres- byte- rians. — Pres- byté- riens.	Pro- tes- tants — Autr's con- fes- sions.	Other Deno- mina- tions. — Autr's con- fes- sions.	Cities and Towns — Villages. Rural Districts — Districts ruraux.	
Eng- land and Wales — Angle terre et Galles	Ire- land. — Ir- lande.	Scot- land. — Ecos- se.													
RECEL—Fin.															
.....
.....	2	3	.....	.....	.....	.....	.....	2	2	1	.....	3	2	
4	2	2	44	6	5	1	.....	27	13	7	5	6	6	50	16
DETOURNEMENT.															
1	7	1	1	.....	1	7	1	.....	.....	.....	.....	1	9
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....
.....	2	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	2	.....
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....
1	11	1	1	.....	1	12	1	.....	.....	.....	.....	13	1
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	1
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....
.....	1	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	1	.....
1	1	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	1	.....
1	1	.....	.....	.....	1	.....	1	.....	.....	.....	.....	1	.....
.....	1	.....	1	.....	.....	1	.....	.....	.....	.....	.....	1	.....
.....	4	1	.....	.....	1	2	.....	1	1	.....	.....	5	.....
1	5	1	1	.....	.....	1	6	1	.....	.....	.....	8	.....
3	1	.....	14	2	2	.....	2	5	8	3	2	1	1	19	3
.....
1	1	.....	.....	1	.....
1	1	.....	.....	1	.....
1	1	.....	.....	1	.....
6	1	.....	25	3	3	.....	3	17	9	3	2	3	1	34	4
FRAUDE.															
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....

TABLE I. OFFENCES AGAINST PROPERTY WITHOUT VIOLENCE. CLASS III.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDICIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Persons charged. — Per- sonnes accu- sées.	Ac- quit- ted. — Ac- quit- tés.	De- tained for Lu- nacy. — Em- pri- son- nés pour cause de folie.	CONVICTIONS. — CONDAMNATIONS.				SENTENCE.		
								COMMITTED TO GAOL		
				Total.	Con- victed 1st.	Con- victed 2nd.	Reite- rated.	With the option of a fine.	No OPTION. — SANS OPTION.	
—	—	—	—		Under one year. — Moins d'un an.	One year and over. — Un an et plus.				
FRAUD—Concluded.										
York, N.B.	1			1	1				1	
Montreal, Que.	15	6		9	7		2	3	3	
Richelieu, Que.	1			1	1			1		
Three Rivers, Que.	*3	2								
Totals of Quebec	19	8		10	8		2	4	3	
Brant, Ont.	12	6	1	5	4		1	1	+3	
Bruce, Ont.	2	1		1		1				
Halton, Ont.	1			1	1			1		
Hastings, Ont.	9	4		5	5			2	2	
Kent, Ont.	5	5								
Middlesex, Ont.	6	3		3	3					
Norfolk, Ont.	3	3								
Simcoe, Ont.	3	3								
Victoria, Ont.	1	1								
Wentworth, Ont.	9	9								
York, Ont.	42	35		7	7				4	
Totals of Ontario	93	70	1	22	20	1	1	4	9	
Manitoba, Eastern	4	3		1	1				1	
Clinton, B.C.	1			1			1			1
Saskatchewan, N.W.T	1	1								
Totals of Canada	121	83	1	36	31	1	4	8	14	1
FALSE PRETENCES.										
Queen's, P.E.I.	1	1								
Halifax, N.S.	1	1								
Hants, N.S.	1	1								
Pictou, N.S.	1			1	1					1
Queen's, N.S.	1	1								
Totals of Nova Scotia	4	3		1	1					1
St. John, N.B.	1			1	1				1	
Beauharnois, Que.	2			2	2				2	
Bedford, Que.	1			1	1				1	
Montreal, Que.	19	7		12	10		2	1	6	
Ottawa, Que.	1			1	1				1	
Quebec, Que.	1	1								
Terrebonne, Que.	1			1	1			1		
Three Rivers, Que.	1			1	1					
Totals of Quebec	26	8		18	16		2	2	10	

*1 *nolle prosequi*.

+1 both gaol and fined.—1 la prison et l'amende.

TABLEAU I. DÉLITS SANS VIOLENCE CONTRE LA PROPRIÉTÉ. CLASSE III.														
SENTENCE.						OCCUPATIONS.						CIVIL CONDITIONS. — ETATS CIVILS.		
PENITENTIARY. — PÉNITENCIER.			D'th. — De mort	Com- mit- ted to Refor- ma- to- ries. — En- voyés à la prison de Réfor- me.	Other Senten- ces. — Autres Senten- ces.	Agricultural. — — Agriculteurs.	Com- mer- cial. — — Commerçants.	Do- mestic — — Servi- teurs.	Indus- trial. — — Indus- triels.	Pro- fes- sional — — Profes- sions libé- rales.	La- borers — — Jour- na- liers.	Mar- ried. — — Mariés.	Wi- dowed — — En- veu- vage.	Single — — Céli- ba- itaires.
Two years and un- der five. — Deux ans et m'ns de cinq.	Five years and over. — Cinq ans et plus.	Life. — A vie												
FRAUDE—Fin.														
									1			1		
					3a.		2		1		3	2		7
										1				1
					3a.		2		1	1	3	2		8
					1a.		1		1		2	2		3
				1			1		1			1		1
					1a.	1	2		1			3		1
					3a.		1		2			2		1
1					2a.		4				5	2		5
1 ^a				1	7a.	1	9		4		5	10		11
								1						1
											1			1
2				1	10a.	1	11	1	6	1	9	13		22
FAUX PRETEXTES.														
														1
														1
														1
											2			2
2					3a.	1	5		2	1	1	1		8
1						1								1
1											1			
3					3a.	2	5		2	1	6	5		11

TABLE I. OFFENCES AGAINST PROPERTY WITHOUT VIOLENCE. CLASS III.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.										USE OF LIQUORS. — USAGE DE LIQUEURS	
	Un- able to read or write. — Inca- pable de lire ou d'é- crire.	Ele- men- tary. — Élé- men- taire.	Super- ior. — Supé- rieure	Under 16 years.	16 years and under 21.	21 years and under 40.	40 years and over.	Not given.	Mo- de- rate	Im- mo- de- rate					
				Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non- donné.							
				M.	F.	M.	F.	M.			F.	M.	F.	M.	F.
				H.	F.	H.	F.	H.			F.	H.	F.	H.	F.
FRAUD—Concluded.															
York, N.-B.							1								
Montréal, Qué.		9		2	2	4	1					4	5		
Richelieu, Qué.		1				1						1			
Trois-Rivières, Qué.															
Totaux de Québec.		10		2	2	5	1					5	5		
Brant, Ont.		5				4	1					5			
Bruce, Ont.	1			1								1			
Halton, Ont.		1					1					1			
Hastings, Ont.		3	1			4		1				4			
Kent, Ont.															
Middlesex, Ont.		3			1	2						2	1		
Norfolk, Ont.															
Simcoe, Ont.															
Victoria, Ont.															
Wentworth, Ont.															
York, Ont.	3	4				7						6	1		
Totaux d'Ontario.	4	16	1	1	1	17	2	1		19	2				
Manitoba, Est.			1				1						1		
Clinton, Col.-B.		1				1						1			
Saskatchewan, T. du N.-O.															
Totaux du Canada.	4	28	2	3	4	23	1	4	1	26	8				
FALSE PRETENCES.															
Queen's, I. du P.-E.															
Halifax, N.-E.															
Hants, N.-E.															
Pictou, N.-E.		1				1						1			
Queen's, N.-E.															
Totaux de la N.-Écosse.		1				1						1			
St. Jean, N.-B.		1			1								1		
Beauharnois, Qué.		1			1	1						1			
Bedford, Qué.		1				1						1			
Montréal, Qué.	2	9	1		1	8	1	2				4	8		
Ottawa, Qué.										1					
Québec, Qué.															
Terrebonne, Qué.		1								1		1			
Trois-Rivières.					1										
Totaux de Québec.	2	12	1		3	10	1	2	2	7	8				

TABLEAU I. DÉLITS SANS VIOLENCE CONTRE LA PROPRIÉTÉ. CLASSE III.														
BIRTH PLACES. — LIEUX DE NAISSANCE.							RELIGIONS.							RESI- DENCE.
BRITISH ISLES. — ILES BRITANNIQUES.			Can- ada. — Etats- Unis.	United States — Autres pays étran- gers.	Other Fo- reign Coun- tries. — Autre's posses- sions Bri- tanni- ques.	Other Bri- tish Pos- ses- sions. — Autre's posses- sions Bri- tanni- ques.	Bap- tists. — Bap- tistes.	R. Ca- tho- lics. — Ca- tho- liques.	Ch. of Eng- land. — Eglise d'An- gle- terre.	Metho- dists — Métho- dis- tes.	Pres- byte- rians. — Pres- byte- riens.	Pro- tes- tants — Autre's con- fes- sions.	Other Deno- mina- tions. — Autre's con- fes- sions.	Cities and Towns — Villes. Rural Districts — Ruraux.
Eng- land and Wales — Angle terre et Galles	Ire- land. — Ir- lande.	Scot- land. — Ecos- se.												
Eng- land and Wales — Angle terre et Galles	Ire- land. — Ir- lande.	Scot- land. — Ecos- se.												
Eng- land and Wales — Angle terre et Galles	Ire- land. — Ir- lande.	Scot- land. — Ecos- se.												
FRAUDE—Fin.														
									1					1
			8	1				8	1					8 1
			1					1						1
			9	1				9	1					9 1
			3	1				2			1		2	4 1
			1								1			1
1			1											1
			3									4		3 1
1			2						1	1	1			3
2			5					1	5		1			7
4			15	1				3	6	2	4	4	2	18 3
1									1					1
			1									1		1
5			26	2				13	9	2	4	5	2	30 5
FAUX PRÉTEXTES.														
			1								1			1
			1								1			1
			1							1				1
			2						2					2
			1											1
			11	1				11	1					10 2
			1					1						1
			1					1						1
			16	1				13	3	1				13 4

TABLE I. OFFENCES AGAINST PROPERTY WITHOUT VIOLENCE. CLASS III.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDICIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Persons charged. — Per- sonnes accusées	Ac- quit- ted. — Ac- quit- tés.	De- tained for Lu- nacy. — Em- pri- son- nés pour cause de folie.	CONVICTIONS. — CONDAMNATIONS.				SENTENCE.		
				Total.	Con- victed 1st.	Con- victed 2nd.	Reite- rated.	COMMITTED TO GAOL — EMPRISONNÉS.		
					—	—	—	With the option of a fine. — Sur option entre la pri- son ou l'a- me'de	No OPTION. — SANSOPTION	One year and over. — Un an et plus.
					Con- dam- nés une fois.	Con- dam- nés deux fois.	Plus de 2 réci- ves.		Un- der one year. — Moins d'un an.	
FALSE PRETENCES— <i>Concluded.</i>										
Brant, Ont.	4	3		1	1				1	
Bruce, Ont.	4	3		1	1					
Carleton, Ont.	4	2		2	2				2	
Essex, Ont.	1	1								
Frontenac, Ont.	3			3	3			1	1	
Hastings, Ont.	2	2								
Huron, Ont.	1			1	1					
Kent, Ont.	8	4		4	4			1		1
Lambton, Ont.	2	2								
Leeds and Grenville, Ont.	1	1								
Lennox and Addington, Ont.	2	1		1	1				1	
Middlesex, Ont.	5	3		2	2				2	
Ontario, Ont.	1	1								
Oxford, Ont.	1			1	1					
Peel, Ont.	1	1								
Perth, Ont.	1			1	1			1		
Thunder Bay, Ont.	1			1	1				1	
Waterloo, Ont.	1	1								
Welland, Ont.	5	4		1			1			1
Wellington, Ont.	5	4		1	1					
Wentworth, Ont.	3	1		2	1	1			1	
York, Ont.	11	8		3	3				2	
Totals of Ontario.	67	42		25	23	1	1	3	11	2
Manitoba, Central.	1			1	1				1	
Manitoba, Eastern.	1			1	1				1	
Manitoba, Western.	1			1	1					
Totals of Manitoba.	3			3	3				2	
Clinton, B.C.	2			2	1	1			2	
New Westminster, B.C.	1	1								
Victoria, B.C.	3			3	3				3	
Totals of British Columbia.	6	1		5	4	1			5	
Assiniboia, Eastern, N.W.T.	1			1	1				1	
Totals of Canada.	109	55		54	49	2	3	5	30	3
VARIOUS OTHER OFFENCES AGAINST PROPERTY WITHOUT VIOLENCE.										
Hants, N.S.	1	1								
Lunenburg, N.S.	2			2	1		1		2	
Totals of Nova Scotia.	3	1		2	1		1		2	
Gloucester, N.B.	1	1								
Westmoreland, N.B.	1			1	1				1	
Totals of New Brunswick.	2	1		1	1				1	

TABLEAU I. DÉLITS SANS VIOLENCE CONTRE LA PROPRIÉTÉ. CLASSE III.														
SENTENCE.						OCCUPATIONS.						CIVIL CONDITIONS.		
PENITENTIARY.			D'th.	Com-mitted to Refor-ma-tories	Other Senten-ces.	Agricultural.	Com-mercial.	Domestic.	Industrial.	Professional.	Laborers.	Married.	Widowed.	Single.
PÉNITENCIER.														
Two years and under five.	Five years and over.	Life.	—	—	—	—	—	—	—	—	—	—	—	—
D'ux ans et m'ns de cinq.	Cinq ans et plus.	A vie	De mort	En-voyés à la prison de Réfor-me.	Autres Senten-ces.	Agri-cultural.	Com-merçants.	Servi-teurs.	Indus-triels.	Pro-fes-sions libé-rales.	Jour-na-liers.	Ma-riés.	En-veu-vage.	Céli-ba-taires.
FAUX PRÉTENTES--Fin.														
					1a.		1		1					1
											1			2
				1			1				1			3
					1a.		1					1		
					2a.	1			1		1	2		1
							1					1		
							1				1	1		1
					1a.						1	1		
									1					1
							1					1		
					1a.									1
					1a.		1		2		1	2		1
1				1	7a.	2	6		6		7	10		13
														1
					1a.				1		1			1
					1a.				1		1			3
									1		1			2
							2			1				3
							2		1	1	1			5
4				1	11a.	4	13		10	2	15	15		34
DIVERS AUTRES DELITS SANS VIOLENCE CONTRE LA PROPRIÉTÉ.														
											2		1	1
											2		1	1
											1			1
											1			1

a Sentence deferred—Sentence remise.

TABLEAU I. DELITS SANS VIOLENCE CONTRE LA PROPRIÉTÉ. CLASSE III.															
BIRTH PLACES. — LIEUX DE NAISSANCE.							RELIGIONS.							RESI- DENCE.	
BRITISH ISLES. — ILES BRITANNIQUES.			Canada.	United States.	Other Foreign Countries.	Other British Possessions.	Baptists.	R. Catholics.	Ch. of England.	Methodists.	Presbyterians.	Protestants.	Other Denominations.	Cities and Towns — Villes.	Rural Districts — Districts ruraux.
England and Wales.	Ireland.	Scotland.													
Angle terre et Galles	Irlande.	Ecosse.	—	Etats-Unis.	Autres pays étrangers.	Autr's possessions Britanniques.	—	—	—	—	—	—	Autr's confessions.	—	—
FAUX PRÉTENTES—Fin.															
.....	1	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	1	.....
.....	1	.....	.....	.....	.....	2	.....	.....	1	.....	.....	1	.....
.....	1	1	.....	.....	.....	2	.....	.....	.....	.....	.....	2	.....
.....	1	.....	2	.....	.....	.....	.....	2	.....	.....	.....	1	.....	3	.....
.....	1	.....	.....	.....	.....	.....	.....	.....	1	1	.....	.....	1	.....
.....	2	.....	1	.....	.....	.....	.....	1	1	.....	1	1	2
.....
.....	1	.....	1	.....	.....	.....	.....	1	1	.....	.....	.....	.....	2	1
.....	1	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....
.....
.....	1	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	1	.....
.....	1	.....	.....	.....	.....	.....	1	1	.....	.....	.....	1	.....
.....	2	1	.....	1	1	1	1	1	.....	.....	.....	3	.....
.....	2	2	15	2	1	1	1	6	5	2	5	2	2	18	6
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....
1	1	.....	.....	1	.....	.....	.....	1	.....	1	.....
1	2	.....	.....	.....	1	.....	2	1
.....	2	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	2	.....
.....	1	1	1	.....	.....	.....	.....	.....	1	2	.....	3	.....
.....	3	1	1	.....	.....	2	.....	.....	1	2	.....	5	.....
.....
.....	1
1	2	2	37	4	3	1	1	23	8	4	7	5	2	40	12
DIVERS AUTRES DÉLITS SANS VIOLENCE CONTRE LA PROPRIÉTÉ.															
.....	2	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	2	.....
.....	2	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	2	.....
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....

TABLE I. OFFENCES AGAINST PROPERTY WITHOUT VIOLENCE— <i>Concluded.</i>										CLASS III.
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDICIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Persons charged. — Per- sonnes accu- sées.	Ac- quit- ted. — Ac- quit- tés.	De- tained for Lu- nacy. — Em- pri- son- nés pour cause de folie.	CONVICTIONS. — CONDAMNATIONS.				SENTENCE.		
				Total.	Con- victed 1st. — Con- dam- nés une fois.	Con- victed 2nd. — Con- dam- nés deux fois.	Reite- rated. — Plus de 2 rédi- ves.	COMMITTED TO GAOL — EMPRISONNÉS.		
								With the option of a fine. — Sur option entre la pri- son ou l'a- m'nde	No OPTION. — SANS OPTION — Un- der one year. — Moins d'un an.	One year and over. — Un an et plus.
VARIOUS OTHER OFFENCES AGAINST PROPERTY WITHOUT VIOLENCE— <i>Concluded.</i>										
Montreal, Que.....	4	.....	.....	4	2	2	.....	2	2	.....
St. Francis, Que.....	1	.....	.....	1	1	.....	.....	1	.....	.....
St. Hyacinthe, Que.....	2	2	.....	.....	.....	.....	.....	.....	.....	.....
Terrebonne, Que.....	2	2	.....	.....	.....	.....	.....	.....	.....	.....
Three Rivers, Que.....	*6	.....	.....	.....	.....	.....	.....	.....	.....	.....
Totals of Quebec.....	15	4	.....	5	3	2	.....	3	2	.....
Totals of Canada.....	20	6	.....	8	5	2	1	3	5	.....
MALICIOUS OFFENCES AGAINST PROPERTY. CLASS IV.										
ARSON.										
Guysborough, N.S.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....
Montreal, Que.....	9	5	.....	4	4	.....	.....	.....	1	.....
Quebec, Que.....	3	3	.....	.....	.....	.....	.....	.....	.....	.....
Totals of Quebec.....	12	8	.....	4	4	.....	.....	.....	1	.....
Brant, Ont.....	1	.....	.....	1	1	.....	.....	.....	1	.....
Bruce, Ont.....	2	1	.....	1	1	.....	.....	.....	.....	.....
Dufferin, Ont.....	1	.....	.....	1	1	.....	.....	.....	.....	.....
Elgin, Ont.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....
Huron, Ont.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....
Kent, Ont.....	1	.....	.....	1	.....	1	.....	.....	1	.....
Lambton, Ont.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....
Middlesex, Ont.....	2	1	.....	1	1	.....	.....	.....	.....	.....
Northumberland & Durham, O..	1	.....	.....	1	1	.....	.....	.....	.....	.....
Ontario, Ont.....	2	1	.....	1	1	.....	.....	.....	.....	.....
Oxford, Ont.....	1	.....	.....	1	1	.....	.....	.....	.....	.....
Perth, Ont.....	1	.....	.....	1	.....	1	.....	.....	.....	.....
Peterborough, Ont.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....
Simcoe, Ont.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....
Waterloo, Ont.....	3	1	.....	2	2	.....	.....	.....	.....	.....
Welland, Ont.....	2	2	.....	.....	.....	.....	.....	.....	.....	.....
Wentworth, Ont.....	1	.....	.....	1	1	.....	.....	.....	.....	.....
York, Ont.....	1	.....	.....	1	1	.....	.....	.....	.....	.....
Totals of Ontario.....	24	11	.....	13	11	2	.....	.....	2	.....
Manitoba, Central.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....
Clinton, B.C.....	1	.....	.....	1	1	.....	.....	.....	.....	.....
Totals of Canada.....	39	20	.....	18	16	2	.....	.....	3	.....
MALICIOUS INJURY TO HORSES, CATTLE AND OTHER PROPERTY.										
Digby, N.S.....	1	.....	.....	1	1	.....	.....	.....	.....	.....
Halifax, N.S.....	+5	2	.....	.....	.....	.....	.....	.....	.....	.....
Totals of Nova Scotia.....	6	2	.....	1	1	.....	.....	.....	.....	.....

* 6 *nolle prosequi.*+ 3 *nolle prosequi.*

TABLEAU I. DÉLITS SANS VIOLENCE CONTRE LA PROPRIÉTÉ—Fin.										CLASSE III.				
SENTENCE.						OCCUPATIONS.						CIVIL CONDITIONS. ÉTATS CIVILS.		
PENITENTIARY. — PÉNITENCIER.			D'th. De mort	Com- mit- ted to Refor- ma- tories En- voyés à la prison de Ré- forme.	Other Senten- ces. Autres Senten- ces.	Agricultural. —	Com- mer- cial. —	Do- mestic —	In- dus- trial. —	Pro- fes- sional —	La- borers —	Mar- ried. —	Wi- dowed —	Single —
Two years and un- der five. — D'un ans et m'ns de cinq.	Five years and over. — Cinq ans et plus.	Life. A vie.												
						Agri- cul- tural. Agri- cul- teurs.	Com- mer- cial. Com- mer- çants.	Do- mestic Servi- teurs.	In- dus- trial. In- dus- triels.	Pro- fes- sional Pro- fes- sions libé- rales.	La- borers Jour- na- liers.	Mar- ried. Ma- riés.	Wi- dowed En- veu- vage.	Single Céli- ba- taires.
DIVERS AUTRES DÉLITS SANS VIOLENCES CONTRE LA PROPRIÉTÉ—Fin.														
							1		2		1		1	3
														1
							1		2		1		1	4
							1		2		4		2	6
OFFENSES MALICIEUSE CONTRE LA PROPRIÉTÉ. CLASSE IV.														
INCENDIE PAR MALVEILLANCE.														
	1				2a.	1	2				1	3		1
	1				2a.	1	2				1	3		1
	1					1		1					1	1
1						1							1	
											1	1		
	1										1			1
1	1					1						1		1
	1					1					1		1	
					2a.									2
	1					1					1			1
	1													1
2	7				2a.	5		1	1		4	2	3	8
1						1								1
3	8				4a.	7	2	1	1		5	5	3	10
DOMMAGES MALICIEUX AUX CHEVAUX, BESTIAUX ET AUTRES PROPRIÉTÉS.														
1											1	1		
1											1	1		

a Sentence deferred.—Sentence remise.

TABLE I. OFFENCES AGAINST PROPERTY WITHOUT VIOLENCE— <i>Concluded.</i>										CLASS III.			
JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.								USE OF LIQUORS. — USAGE DE LIQUEURS	
	Un- able to read or write.	Ele- men- tary.	Super- rior.	Under 16 years.	16 years and under 21.	21 years and under 40.	40 years and over.	Not given.	Mo- de- rate	Im- mo- de- rate			
				Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non- donné.					
				M.	F.	M.	F.	M.			F.	M.	F.
				H.	F.	H.	F.	H.			F.	H.	F.
Montréal Qué	2	2			1	1	1	1		1	3		
St. François, Qué	1					1				1			
St. Hyacinthe, Qué													
Terrebonne, Qué													
Trois-Rivières, Qué													
Totaux de Québec	3	2			1	2	1	1		2	3		
Totaux du Canada	4	4		1	1	4	1	1		4	4		
VARIOUS OTHER OFFENCES AGAINST PROTERTY WITHOUT VIOLENCE— <i>Concluded.</i>													
MALICIOUS OFFENCES AGAINST PROPERTY. CLASS IV.													
ARSON.													
Guysborough, N.-E.													
Montréal, Qué	1	3				3	1			2	2		
Québec, Qué													
Totaux de Québec	1	3				3	1			2	2		
Brant, Ont.		1				1				1			
Bruce, Ont.		1				1				1			
Dufferin, Ont.		1					1			1			
Elgin, Ont.													
Huron, Ont.													
Kent, Ont.		1				1				1			
Lambton, Ont.					1		1						
Middlesex, Ont.		1								1			
Northumberl'd et Durham, O.		1				1				1			
Ontario, Ont.		1					1			1			
Oxford, Ont.		1					1			1			
Perth, Ont.		1			1					1			
Peterborough, Ont.													
Simcoe, Ont.													
Waterloo, Ont.	2			2						2			
Welland, Ont.													
Wentworth, Ont.		1				1				1			
York, Ont.		1				1				1			
Totaux d'Ontario	2	11		2	2	4	2	3		11	2		
Manitoba, Centre													
Clinton, Col.-B.		1				1				1			
Totaux du Canada	3	15		2	2	8	2	4		14	4		
MALICIOUS INJURY TO HORSES, CATTLE AND OTHER PROPERTY.													
Digby, N.-E.		1					1				1		
Halifax, N.-E.													
Totaux de la N.-Ecosse		1					1				1		

TABLEAU I.										DÉLITS SANS VIOLENCE CONTRE LA PROPRIÉTÉ—Fin.										CLASSE III.	
BIRTH PLACES. LIEUX DE NAISSANCE.										RELIGIONS.										RESI- DENCE.	
BRITISH ISLES. ILES BRITANNIQUES.			Canada.	United States — Etats-Unis.	Other Foreign Countries. — Autr's pays étrangers.	Other British Possessions. — Autr's possessions Britanniques.	Baptists. — Bap- tistes.	R. Catholics. — Catho- liques.	Ch. of Eng-land. — Eglise d'An- gle-terre.	Methodists. — Mé- tho- dis- tes.	Pres- byte- rians. — Pres- byté- riens.	Protes- tants — Autr's con- fes- sions.	Other Deno- mina- tions. — Autr's con- fes- sions.	Cities and Towns. Villes.	Rural Districts—Districts ruraux.						
Eng-land and Wales — Angle terre et Galles	Ire-land. — Ir-lande.	Scot-land. — Ecos-se.																			
DIVERS AUTRES DELITS SANS VIOLENCE CONTRE LA PROPRIÉTÉ—Fin.																					
.....	1	.....	3	.....	.....	.....	.....	3	.....	.....	1	.....	.....	4	1
.....	.....	.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....
.....						
.....	1	.....	4	.....	.....	.....	.....	4	.....	.....	1	.....	.....	4	1
.....	1	.....	7	.....	.....	.....	.....	5	.....	2	1	.....	.....	7	1
OFFENSES MALICIEUSES CONTRE LA PROPRIÉTÉ. CLASSE IV.																					
INCENDIE PAR MALVEILLANCE.																					
.....	.....	.....	4	.....	.....	.....	.....	4	.....	.....	.....	.....	.....	3	1
.....	.....	.....	4	.....	.....	.....	.....	4	.....	.....	.....	.....	.....	3	1
.....	.....	.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	1
.....	1	.....	1	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1	1
.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1	.....					
1	.....	.....	1	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	1	.....					
1	.....	.....	1	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	1	.....					
1	1	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	1	.....					
.....	.....	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	1	.....	.....	.....	.....	1	.....	.....	1	.....	.....	.....	1
.....	.....	.....	.....	.....	1	.....	.....	1	.....	.....	.....	.....	.....	.....	1
3	2	.....	7	.....	1	.....	.....	1	2	3	2	1	4	7	6		
.....						
.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1
3	2	1	11	.....	1	.....	.....	5	2	3	2	2	4	10	8			
DOMMAGES MALICIEUX AUX CHEVAUX, BESTIAUX ET AUTRES PROPRIÉTÉS.																					
.....	.....	.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	1
.....						
.....	.....	.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	1

TABLE I. MALICIOUS OFFENCES AGAINST PROPERTY—*Concluded.* CLASS IV.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDICIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Persons charged. — Per- sonnes accu- sées.	Ac- quit- ted. — Ac- quit- tés.	De- tained for Lu- nacy. — Em- pri- son- nés pour cause de folie.	CONVICTIONS. — CONDAMNATIONS.				SENTENCE. — COMMITTED TO GAOL — EMPRISONNÉS.		
				Total.	Con- victed 1st.	Con- victed 2nd.	Reite- rated.	With the option of a fine.	No OPTION. — SANS OPTION	
					— Con- dam- nés une fois.	— Con- dam- nés deux fois.	— Plus de 2 rédi- ves.	— Sur option entre la pri- son ou l'a- m'nde	Un- der one year. — Moins d'un an.	One year and over. — Un an et plus.
MALICIOUS INJURY TO HORSES, CATTLE AND OTHER PROPERTY— <i>Concluded.</i>										
Northumberland, N.B.	4	...	...	4	4	...	...	4	...	...
York, N.B.	1	1	...	...	...	...	...	...	...	...
Totals of New Brunswick. .	5	1	...	4	4	...	...	4	...	...
Beauce, Que.	1	...	...	1	1	...	...	...	1	...
Montreal, Qué.	9	5	...	4	3	1	...	...	...	...
Quebec, Que.	2	2	...	...	...	...	...	...	...	...
St. Francis, Que.	1	...	...	1	1	...	...	...	1	...
Totals of Quebec.	13	7	...	6	5	1	...	...	2	...
Brant, Ont.	1	1	...	...	...	...	...	...	...	...
Carleton, Ont.	2	...	...	2	2	...	...	...	2	...
Dufferin, Ont.	1	1	...	...	...	...	...	...	...	...
Elgin, Ont.	1	...	...	1	1	...	...	...	1	...
Hastings, Ont.	2	1	...	1	1	...	...	...	1	...
Middlesex, Ont.	1	1	...	...	...	...	...	...	...	...
Northumberland & Durham, Ont	2	2	...	...	...	...	...	...	...	...
Oxford, Ont.	1	1	...	...	...	...	...	...	...	...
Renfrew, Ont.	1	1	...	...	...	...	...	...	...	...
Victoria, Ont.	2	2	...	...	...	...	...	...	...	...
Welland, Ont.	20	15	...	5	5	...	...	5	...	...
Wellington, Ont.	1	1	...	...	...	...	...	...	...	...
York, Ont.	2	...	...	2	2	...	...	1	1	...
Totals of Ontario.	37	26	...	11	11	...	...	6	5	...
Manitoba, Eastern.	1	...	...	1	...	...	1	...	1	...
New Westminster, B.C.	2	1	...	1	1	...	...	...	...	...
Alberta, Southern, N.W.T.	5	1	...	4	4	...	...	...	1	...
Assiniboia, Eastern, N.W.T.	2	...	...	2	2	...	...	1	1	...
Saskatchewan, N.W.T.	2	...	...	2	2	...	...	...	1	...
Totals of the N.W.T.	9	1	...	8	8	...	...	1	3	...
Totals of Canada.	73	38	...	32	30	1	1	11	11	...
FORGERY AND OFFENCES AGAINST THE CURRENCY. CLASS V.										
Colchester, N.S.	2	...	...	2	2	...	...	...	...	...
Bedford, Que.	1	...	...	1	1	...	...	...	1	...
Montreal, Que.	14	7	...	7	4	2	1	...	...	4
Quebec, Que.	2	2	...	...	...	...	...	...	...	...
Richelieu, Que.	2	2	...	...	...	...	...	...	...	...
St. Francis, Que.	1	...	...	1	1	...	...	...	...	1
Three Rivers, Que.	1	1	...	...	...	...	...	...	...	...
Totals of Quebec.	21	12	...	9	6	2	1	...	1	5

TABLEAU I. OFFENSES MALICIEUSES CONTRE LA PROPRIÉTÉ—Fin. CLASSE IV.														
SENTENCE.						OCCUPATIONS.						CIVIL CONDITIONS. ÉTATS CIVILS.		
PENITENTIARY. — PÉNITENCIER.			D'th. — De mort	Com- mit- ted to Refor- ma- to- ries. — En- voyés à la prison de Réfor- me.	Other Senten- ces. — Autres Senten- ces.	Agricultural. — Agriculteurs.	Com- mer- cial. — Com- merçants.	Do- mestic — Servi- teurs.	Indus- trial. — Indus- triels.	Pro- fes- sional — Pro- fes- sions libé- rales.	La- borers — Jour- na- liers.	Mar- ried. — Ma- riés.	Wi- dowed — En- veu- vage.	Single — Céli- ba- taires.
Two years and un- der five. — Deux ans et m'ns de cinq.	Five years and over. — Cinq ans et plus.	Life. — A vie												
DOMMAGES MALICIEUX AUX CHEVAUX, BESTIAUX ET AUTRES PROPRI.—Fin.														
.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	4
.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	4
2	.....	.....	.....	2	.....	1	1	.....	.....	.....	.....	1	.....	1 3
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	.....	.....
2	.....	.....	.....	2	.....	1	1	.....	.....	.....	1	2	.....	4
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	2
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	.....	.....
.....	.....	.....	.....	.....	.....	1	1	.....	1	.....	1	4	.....	1
.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	1	1	.....	1
.....	.....	.....	.....	.....	.....	1	2	.....	1	.....	5	6	.....	4
.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	1
.....	.....	.....	.....	.....	1a.	.....	.....	.....	.....	.....	.....	.....	.....	.....
3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	3	.....	1
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	1	1	.....	.....
3	1	.....	.....	.....	.....	2	.....	.....	.....	.....	4	5	.....	1
6	1	.....	.....	2	1a.	4	3	.....	3	.....	11	14	.....	14
FAUX ET DÉLITS PAR RAPPORT À LA MONNAIE. CLASSE V.														
2	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1	.....	.....	2
1	1	.....	.....	.....	1a.	.....	3	.....	1	2	1	1	2	5
.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	1	.....	.....
1	1	.....	.....	.....	1a.	.....	4	.....	1	2	2	4	.....	5

a Sentence deferred—Sentence remise.

TABLE I. MALICIOUS OFFENCES AGAINST PROPERTY—*Concluded.* CLASS IV.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.										USE OF LIQUORS. — USAGE DE LIQUEURS	
	Un- able to read or write.	Ele- men- tary.	Super- rior.	Under 16 years.	16 years and under 21.	21 years and under 40.	40 years and over.	Not given.	Mo- de- rate	Im- mo- de- rate					
				Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non- donné.							
				M. F	M. F.	M. F.	M. F.	M. F.			M. F.				
	Inca- pable de lire ou d'é- crire.	Élé- men- taire.	Supé- rieure	M. F	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.		
MALICIOUS INJURY TO HORSES, CATTLE AND OTHER PROPERTY — <i>Concluded.</i>															
Northumberland, N.-B.				3			1								
York, N.-B.															
Totaux du N.-Brunswick.				3			1								
Beauce, Qué.		1				1							1		
Montréal, Qué.	4			2		1	1						2	2	
Québec, Qué.															
St. François, Qué.	1					1							1		
Totaux de Québec.	5	1		2		3	1						4	2	
Brant, Ont.															
Carleton, Ont.		2			2								2		
Dufferin, Ont.															
Elgin, Ont.		1				1							1		
Hastings, Ont.									1						
Middlesex, Ont.															
Northumberl'd et Durham, O.															
Oxford, Ont.															
Renfrew, Ont.															
Victoria, Ont.															
Welland, Ont.		5				3		1	1				4	1	
Wellington, Ont.															
York, Ont.		2				1		1					1	1	
Totaux d'Ontario.		10			2	5		2	1	1			7	3	
Manitoba, Est.		1				1								1	
New Westminster, Col.-B.										1					
Alberta, Sud, T. du N.-O.	2	2				4							3	1	
Assiniboia, Est, T. du N.-O.									2						
Saskatchewan, T. du N.-O.		1													
Totaux des T. du N.-O.	2	3				4		2		2			3	1	
Totaux du Canada.	7	16		5	2	13	2	5	1	4			14	8	
FORGERY AND OFFENCES AGAINST THE CURRENCY. CLASS V.															
Colchester, N.-E.		2			1	1							2		
Bedford, Qué.		1				1							1		
Montréal, Qué.		5	2		2	4		1					1	6	
Québec, Qué.															
Richelieu, Qué.															
St. François, Qué.		1								1			1		
Trois-Rivières, Qué.															
Totaux de Québec.		7	2		2	5		1		1			3	6	

TABLEAU I. OFFENSES MALICIEUSES CONTRE LA PROPRIÉTÉ—Fin. CLASSE IV.

BIRTH PLACES. LIEUX DE NAISSANCE.						RELIGIONS.								RESI- DENCE.	
BRITISH ISLES. — ILES BRITANNIQUES.			Canada.	United States — Etats-Unis.	Other Foreign Countries. — Autres pays étrangers.	Other British Possessions. — Autr's possessions Britanniques.	Baptists. — Baptistes.	R. Catholics. — Catholiques.	Ch. of England. — Eglise d'Angleterre.	Methodists. — Méthodistes.	Presbyterians. — Presbytériens.	Protestants. — Autr's confessions.	Other Denominations. — Autr's confessions.	Cities and Towns—Villes.	Districts—Districts ruraux.
England and Wales — Angleterre et Galles	Ireland. — Irlande.	Scotland. — Ecosse.													

DOMMAGES MALICIEUX AUX CHEVAUX, BESTIAUX ET AUTRES PROPRI.—Fin.

			4					3				1		4	
			4					3				1		4	
			1					1							1
	1		3					4						4	
				1								1			1
	1		4	1				5				1		4	2
			2					2							2
			1							1					1
			5						4		1			2	3
			2					1	1					2	
			10					3	5	1	1			4	6
					1			1						1	
			3	1				2				1	1	3	1
			1	1								1		1	2
			4	2				2				1	2	4	4
	1		23	3	1			15	5	1	1	3	2	18	13

FAUX ET DÉLITS PAR RAPPORT À LA MONNAIE. CLASSE V.

			2				1			1				2	
			1									1			1
			6	1				6		1				5	2
			1					1						1	
			8	1				7		1		1		6	3

TABLE I. FORGERY AND OFFENCES AGAINST THE CURRENCY—*Con.* CLASS V.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDICIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Persons charged — Personnes accu- sées.	Ac- quit- ted. — Ac- quit- tés.	De- tained for Lu- nacy. — Em- pri- son- nés pour cause de folie.	CONVICTIONS. — CONDAMNATIONS.				SENTENCE.		
				Total.	Con- victed 1st.	Con- victed 2nd.	Reite- rated.	COMMITTED TO GOAL — EMPRISONNÉS.		
					— Con- dam- nés une fois.	— Con- dam- nés deux fois.	— Plus de 2 rédi- ves.	With the option of a fine. — Sur option entre la pri- son ou l'a- m'nde	No OPTION. — SANS OPTION	One year and over. — Un an et plus.
Carleton, Ont.	2	1	.....	1	1	.....	.....	.....	.....	.....
Dufferin, Ont.	1	.....	.....	1	1	.....	.....	.....	1	.....
Elgin, Ont.	2	1	.....	1	1	.....	.....	.....	1	.....
Essex, Ont.	5	.....	.....	5	5	.....	.....	.....	1	.....
Hastings, Ont.	1	.....	.....	1	1	.....	.....	.....	.....	.....
Huron, Ont.	3	2	.....	1	1	.....	.....	.....	.....	.....
Kent, Ont.	5	2	.....	3	3	.....	.....	.....	1	.....
Northumberland, & Durham, O.	1	1	.....	.....	.....	.....	.....	.....	.....	.....
Oxford, Ont.	1	.....	.....	1	1	.....	.....	.....	.....	.....
Prescott and Russell, Ont.	1	.....	.....	1	1	.....	.....	.....	.....	.....
Thunder Bay, Ont.	1	.....	.....	.....	.....	1	.....	.....	.....	.....
Wentworth, Ont.	6	4	.....	2	1	.....	1	.....	1	.....
York, Ont.	8	4	.....	4	4	.....	.....	.....	1	1
Totals of Ontario.....	37	15	.....	22	20	1	1	.....	6	1
Manitoba, Eastern.....	2	.....	.....	2	2	.....	.....	.....	2	.....
Victoria, B.C.....	1	.....	.....	1	1	.....	.....	.....	.....	.....
Totals of Canada.....	63	27	.....	36	31	3	2	.....	9	6

OTHER OFFENCES NOT INCLUDED IN THE FOREGOING CLASSES. CLASS VI.

PERJURY AND SUBORNATION OF PERJURY.

Inverness, N.S.	1	1	.....	.....	.....	.....	.....	.....	.....	.....
King's, N.S.	3	3	.....	.....	.....	.....	.....	.....	.....	.....
Totals of Nova Scotia.....	4	4	.....	.....	.....	.....	.....	.....	.....	.....
Montreal, Que.	2	2	.....	.....	.....	.....	.....	.....	.....	.....
Terrebonne, Que.	1	1	.....	.....	.....	.....	.....	.....	.....	.....
Three Rivers, Que.	*3	2	.....	.....	.....	.....	.....	.....	.....	.....
Totals of Quebec.....	6	5	.....	.....	.....	.....	.....	.....	.....	.....
Algoma, Ont.	+2	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hastings, Ont.	2	2	.....	.....	.....	.....	.....	.....	.....	.....
Kent, Ont.	2	.....	.....	2	2	.....	.....	.....	.....	.....
Lambton, Ont.	2	2	.....	.....	.....	.....	.....	.....	.....	.....
Northumberland & Durham, O..	§2	1	.....	.....	.....	.....	.....	.....	.....	.....
Simcoe, Ont.	1	1	.....	.....	.....	.....	.....	.....	.....	.....
Stormont, D'das & Glengarry, O.	4	4	.....	.....	.....	.....	.....	.....	.....	.....
Welland, Ont.	1	1	.....	.....	.....	.....	.....	.....	.....	.....
Wentworth, Ont.	1	1	.....	.....	.....	.....	.....	.....	.....	.....
Totals of Ontario.....	17	12	.....	2	2	.....	.....	.....	.....	.....
Manitoba, Eastern.....	3	3	.....	.....	.....	.....	.....	.....	.....	.....

*1 *nolle prosequi*. +2 *nolle prosequi*. §1 jury disagreed—1 le juré ne s'est pas accordé.

TABLE I. OTHER OFFENCES NOT INCLUDED IN THE FOREGOING CLASS VI. CLASSES.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDICIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Persons charged. — Per- sonnes accu- sées.	Ac- quit- ted. — Ac- quit- tés.	De- tained for Lu- nacy. — Em- pri- son- nés pour cause de folie.	CONVICTIONS. — CONDAMNATIONS.			SENTENCE.		
				Total.	Con- victed 1st.	Con- victed 2nd.	Reite- rated.	COMMITTED TO GAOL — EMPRISONNÉS.	
					— Con- dam- nés une fois.	— Con- dam- nés deux fois.	— Plus de 2 récidi- ves.	With the option of a fine. — Sur option entre la pri- son ou l'a- mende	NO OPTION. — SANS OPTION.
								Un- der one year. — Moins d'un an.	One year and over. — Un an et plus.
PERJURY AND SUBORNATION OF PERJURY— <i>Concluded.</i>									
Alberta, Northern, N.W.T.....	2	1	.....	1	1	.....	.....	.....	.....
Alberta, Southern N.-W.T.....	†2	.....	.....	1	1	.....	.....	.....	1
Totals of the N.W.T.....	4	1	.....	2	2	.....	.....	.....	1
Totals of Canada.....	34	25	.....	4	4	.....	.....	.....	1
STEALING REGISTERED LETTERS AND OTHER MAIL MATTERS.									
Montreal, Que.....	4	1	.....	3	3	.....	.....	.....	1
Huron, Ont.....	2	2	.....	.....	.....	.....	.....	.....	.....
Thunder Bay, Ont.....	2	2	.....	.....	.....	.....	.....	.....	.....
Totals of Ontario.....	4	4	.....	.....	.....	.....	.....	.....	.....
Manitoba, Eastern.....	1	.....	.....	1	.....	1	.....	.....	.....
Alberta, Northern, N.W.T....	1	1	.....	.....	.....	.....	.....	.....	.....
Totals of Canada.....	10	6	.....	4	3	1	.....	.....	1
CARRYING UNLAWFUL WEAPONS.									
Northumberland, N.B.....	1	.....	.....	1	1	.....	.....	.....	1
Arthabaska, Que.....	1	.....	.....	1	1	.....	.....	.....	.....
Montreal, Que.....	2	.....	.....	2	2	.....	.....	.....	1
Quebec, Que.....	1	.....	.....	1	1	.....	.....	1	.....
Totals of Quebec.....	4	.....	.....	4	4	.....	.....	1	1
Elgin, Ont.....	1	.....	.....	1	1	.....	.....	1	.....
Huron, Ont.....	1	.....	.....	1	.....	1	.....	.....	1
Victoria, Ont.....	1	.....	.....	1	.....	.....	1	.....	1
Welland, Ont.....	3	1	.....	2	1	1	.....	.....	2
Wentworth, Ont.....	4	2	.....	2	2	.....	.....	1	1
York, Ont.....	1	1	.....	.....	.....	.....	.....	.....	.....
Totals of Ontario.....	11	4	.....	7	4	2	1	2	5
Totals of Canada.....	16	4	.....	12	9	2	1	3	7
VIOLATION OF THE ELECTION ACT.									
Richelieu, Que.....	1	1	.....	.....	.....	.....	.....	.....	.....

+ (1 absconded; bail estreated.

* (1 a laissé le pays; cautionnement confisqué.

TABLEAU I. AUTRES DÉLITS NON COMPRIS DANS LES CLASSES CLASSE VI. PRÉCÉDENTES.														
SENTENCE.						OCCUPATIONS.						CIVIL CONDITIONS.		
PENITENTIARY. — PÉNITENCIER.			D'th.	Com- mit- ted to Refor- ma- to- ries	Other Senten- ces.	Agricultural.	Com- mer- cial.	Do- mestic	In- dus- trial.	Pro- fes- sional	La- borers	Mar- ried.	Wi- dowed	Single
Two years and un- der five.	Five years and over.	Life.												
D'un ans et moins de cinq.	Cinq ans et plus.	A vie	De mort.	En- voyés à la prison de Réfor- me.	Autres Senten- ces.	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	Agri- cul- teurs.	Com- mer- çants.	Servi- teurs.	In- dus- triels.	Pro- fes- sions libé- rales.	Jour- na- liers.	Ma- riés.	En- veu- vage.	Céli- ba- taires.
PARJURE ET SUBORNATION DE PARJURE—Fin.														
1										1				1
										1				1
1										1	1			2
3										1	3			4
VOL DE LETTRES CHARGÉES ET AUTRES MATIÈRES POSTALES.														
				1	1a.		1							3
				1										1
				2	1a.		1							4
PORT D'ARMES ILLÉGAL.														
									1			1		
					1b.	1								1
					1b.		2							2
							1							1
					2b.	1	3							4
						1				1		1		1
											1		1	
									1		2			2
											1			2
						1			1	1	4	1	1	5
					2b.	2	3		2	1	4	2	1	9
INFRACTIONS À LA LOI ELECTORALE.														

a { Sentence deferred.
Sentence remise.

b { Bound to keep the peace.
Tenus de garder la paix.

TABLE I. OTHER OFFENCES NOT INCLUDED IN THE FOREGOING CLASS VI. CLASSES.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDICIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Persons charged. — Per- sonnes accu- sées.	Ac- quit- ted. — Ac- quit- tés.	De- tained for Lu- nacy. — Em- pri- son- nés pour cause de folie.	CONVICTIONS. — CONDAMNATIONS.				SENTENCE.		
				Total.	Con- victed 1st.	Con- victed 2nd.	Reite- rated.	COMMITTED TO GAOL — EMPRISONNÉS.		
					—	—	—	With the option of a fine. — Sur option entre la pri- son ou l'a- mende	No OPTION. — SANS OPTION.	OPTION. — Un- der one year. — Moins d'un an.
					Con- dam- nés une fois.	Con- dam- nés deux fois.	Plus de 2 rédi- ves.			One year and over. — Un an et plus.
VIOLATION OF THE ELECTION ACT— <i>Concluded.</i>										
Hastings, Ont.	5	2		3	3				*2	
Lambton, Ont.	1	1								
Totals of Ontario	6	3		3	3				2	
Manitoba, Eastern	9	9								
Totals of Canada	16	13		3	3				2	
INDECENT EXPOSURE AND OTHER OFFENCES AGAINST PUBLIC MORALS.										
Halifax, N.S.	1			1	1				1	
Montreal, Que.	8			8	8				†4	
Quebec, Que.	1	1								
Three Rivers, Que.	1			1			1	1		
Totals of Quebec	10	1		9	8		1	1	4	
Simcoe, Ont.	2			2	2					
Manitoba, Eastern	1	1								
Totals of Canada	14	2		12	11		1	1	5	
HIGHWAY OBSTRUCTING.										
Lunenburg, N.S.	1			1	1				1	
Lincoln, Ont.	1			1		1				
Norfolk, Ont.	3			3	3					
Ontario, Ont.	1			1	1			1		
Victoria, Ont.	2	1		1	1					
Totals of Ontario	7	1		6	5	1		1		
Totals of Canada	8	1		7	6	1		1	1	
OFFENCES AGAINST REVENUE LAWS.										
St. Hyacinthe, Que.	1	1								
Middlesex, Ont.	1	1								
Alberta, Northern, N.W.T.	1			1	1				†1	
Totals of Canada	3	2		1	1				1	
ATTEMPT TO COMMIT SUICIDE.										
Montreal, Que.	1			1	1					
Huron, Ont.	1			1	1				1	
Lanark, Ont.	1			1	1					
Middlesex, Ont.	1			1		1				

† 1 both gaol and fined.
11 la prison et l'amende.

‡ 3 to receive 30 lashes.
3 a recevoir 30 coups de fouet.

+ 1 And \$500 fined.
+ 1 Et \$500 d'amende.

TABLE I. OTHER OFFENCES NOT INCLUDED IN THE FOREGOING CLASS VI. CLASSES.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ETÉ COMMISE.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.								USE OF LIQUORS. — USAGE DE LIQUEURS	
	Un- able to read or write.	Ele- men- tary.	Super- rior.	Under 16 years. — Moins de 16 ans.	16 years and under 21. — 16 ans et moins de 21.	21 years and under 40. — 21 ans et moins de 40.	40 years and over. — 40 ans et plus.	Not given. — Non- donné.				Mo- de- rate	Im- mo- de- rate
	—	—	—	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	Mo- dé- ré	Im- mo- dé- ré
	Inca- pable de lire ou d'é- crire.	Elé- men- taire.	Supé- rieure	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	Mo- dé- ré	Im- mo- dé- ré
VIOLATION OF THE ELECTION ACT— <i>Concluded.</i>													
Hastings, Ont.		1	2			2		1				1	2
Lambton, Ont.													
Totaux d'Ontario.		1	2			2		1				1	2
Manitoba, Est.													
Totaux du Canada.		1	2			2		1				1	2
INDECENT EXPOSURE AND OTHER OFFENCES AGAINST PUBLIC MORALS.													
Halifax, N.-E.	1							1				1	
Montréal, Qué.	5	3			2	5		1				1	7
Québec, Qué.													
Trois-Rivières, Qué.	1					1							1
Totaux de Québec.	6	3			2	5	1	1				1	8
Simcoe, Ont.		2					1	1				2	
Manitoba, Est.													
Totaux du Canada.	7	5			2	5	2	3				4	8
HIGHWAY OBSTRUCTING.													
Lunenburg, N.-E.		1				1						1	
Lincoln, Ont.		1						1				1	
Norfolk, Ont.		3						3				3	
Ontario, Ont.									1				
Victoria, Ont.		1						1				1	
Totaux d'Ontario.		5						5		1		5	
Totaux du Canada.		6				1		5		1		6	
OFFENCES AGAINST REVENUE LAWS.													
St. Hyacinthe, Qué.													
Middlesex, Ont.													
Alberta, Nord, T. du N.-O..										1			
Totaux du Canada.										1			
ATTEMPT TO COMMIT SUICIDE.													
Montréal, Qué.		1						1					1
Huron, Ont.		1						1					1
Lamark, Ont.		1						1					1
Middlesex, Ont.		1			1							1	

TABLEAU I. AUTRES DELITS NON COMPRIS DANS LES CLASSES CLASSE VI. PRÉCÉDENTES.														
BIRTH PLACES. — LIEUX DE NAISSANCE.							RELIGIONS.						RESI- DENCE.	
BRITISH ISLES. — ILES BRITANNIQUES.			Canada. — Etats-Unis.	United States — Autres pays étrangers.	Other Foreign Countries. — Autres possessions Britanniques.	Other British Possessions. — Autres possessions Britanniques.	Baptists. — Baptistes.	R. Catholics. — Catholiques.	Ch. of Eng-land. — Eglise d'Angle-terre.	Metho-dists. — Méthodistes.	Pres-byte-rians. — Pres-bytériens.	Protes-tants — Autr's con-fes-sions.	Other Deno-minations. — Autr's con-fes-sions.	Cities and Towns—Villes. Rural Districts—Districts ruraux.
Eng-land and Wales — Angle terre et Galles	Ire-land. — Ir-lande.	Scot-land. — Ecos-se.												
INFRACTIONS A LA LOI ELECTORALE—Fin.														
.....	3	.....	.....	.....	.....	.....	1	1	1	.....	.....	3
.....	3	.....	.....	.....	.....	.....	1	1	1	.....	.....	3
.....	3	.....	.....	.....	.....	.....	1	1	1	.....	.....	3
EXPOSITION INDECENTE ET AUTRES DELITS CONTRE LA MORALE PUBLIQUE.														
.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....
1	7	.....	.....	.....	6	2	.....	.....	.....	.....	5	3
.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....
1	8	.....	.....	.....	7	2	.....	.....	.....	.....	6	3
1	1	.....	.....	.....	.....	.....	1	.....	.....	.....	1	2
.....
2	10	.....	.....	.....	1	7	2	1	.....	.....	1	5
OBSTRUANT LA VOIE PUBLIQUE.														
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1
.....	1	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	1
.....	3	.....	.....	.....	1	.....	2	.....	.....	.....	3	1
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1	.....
.....	1	.....	4	.....	.....	.....	1	.....	3	.....	1	.....	4	2
.....	1	.....	5	.....	.....	.....	1	.....	3	.....	1	1	5	2
DELITS CONTRE LE REVENU DE L'ETAT.														
.....
.....
.....
.....
TENTATIVE DE SUICIDE.														
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1
.....	1	.....	.....	1	.....	.....	.....	.....	.....	1	.....	.....	1	.....
1	1	.....	.....	.....	1	.....

TABLE I. OTHER OFFENCES NOT INCLUDED IN THE FOREGOING CLASS VI. CLASSES.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. DISTRICTS JUDICIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Persons charged. — Personnes accu- sées.	Ac- quit- ted. — Ac- quit- tés.	De- tained for Lu- nacy. — Em- pri- son- nés pour cause de folie.	CONVICTIONS. — CONDEMNATIONS.			SENTENCE.		
				Total.	Con- victed 1st. — Con- dam- nés une fois.	Con- victed 2nd. — Con- dam- nés deux fois.	Reite- rated. — Plus de 2 réci- ves.	COMMITTED TO GAOL — EMPRISONNÉS.	
								With the option of a fine. — Sur option entre la pri- son ou l'a- m'nde	NO OPTION. — SANS OPTION
								Un- der one year. — Moins d'un an.	One year and over. — Un an et plus.
ATTEMPT TO COMMIT SUICIDE— <i>Concluded.</i>									
Wentworth, Ont.	1	.....	.....	1	.....	.....	1	.....	.....
York, Ont.	3	2	.....	1	1	.....	.....	.....	.....
Totals of Ontario.	7	2	.....	5	3	1	1	.....	1
Totals of Canada.	8	2	.....	6	4	1	1	.....	1
KEEPING AND FREQUENTING DISORDERLY HOUSES.									
Queen's, P.E.I.	4	.....	.....	4	3	.....	1	.....	3
St. John, N.B.	21	3	.....	18	18	.....	.....	15	3
Bedford, Que.	3	.....	.....	3	3	.....	.....	.....	*3
St. Francis, Que.	5	1	.....	4	4	.....	.....	.....	.....
Totals of Quebec.	8	1	.....	7	7	.....	.....	.....	3
Algoma, Ont.	2	.....	.....	2	2	.....	.....	.....	.....
Carleton, Ont.	6	2	.....	4	4	.....	.....	.....	4
Elgin, Ont.	2	.....	.....	2	2	.....	.....	.....	2
Hastings, Ont.	1	.....	.....	1	1	.....	.....	.....	.....
Lambton, Ont.	1	.....	.....	1	1	.....	.....	.....	.....
Lennox and Addington, Ont.	1	.....	.....	1	1	.....	.....	.....	.....
Middlesex, Ont.	1	.....	.....	1	1	.....	.....	.....	.....
Totals of Ontario.	14	2	.....	12	12	.....	.....	.....	6
New Westminster, B.C.	11	.....	.....	11	11	.....	.....	11	.....
Victoria, B.C.	3	.....	.....	3	3	.....	.....	3	.....
Totals of British Columbia.	14	.....	.....	14	14	.....	.....	14	.....
Totals of Canada.	61	6	.....	55	54	.....	1	29	15
PRISON BREACH, ESCAPE AND ATTEMPT TO ESCAPE FROM PRISON.									
Madawaska, N.B.	1	.....	.....	1	.....	1	.....	.....	1
Westmoreland, N.B.	1	.....	.....	1	.....	1	.....	.....	.....
Totals of New Brunswick.	2	.....	.....	2	.....	2	.....	.....	1
Joliette, Que.	1	.....	.....	1	.....	.....	1	.....	1
Richelieu, Que.	1	.....	.....	1	.....	.....	1	.....	1
Totals of Quebec.	2	.....	.....	2	.....	.....	2	.....	2
Algoma, Ont.	1	.....	.....	1	.....	1	.....	.....	1
Frontenac, Ont.	1	.....	.....	1	.....	1	.....	.....	1
Huron, Ont.	2	.....	.....	2	.....	1	1	.....	1
Oxford, Ont.	2	.....	.....	2	.....	2	.....	.....	.....

*Both gaol and fined.—La prison et l'amende.

TABLEAU I. AUTRES DÉLITS NON COMPRIS DANS LES CLASSES CLASSE VI. PRÉCÉDENTES.															
BIRTH PLACES. LIEUX DE NAISSANCE.						RELIGIONS.							RESI- DENCE.		
BRITISH ISLES. — ILES BRITANNIQUES.			Canada.	United States — Etats-Unis.	Other Foreign Countries. — Autres pays étrangers.	Other British Possessions. — Autr's possessions Britanniques.	Bap- tists. — Bap- tistes.	R. Ca- tho- lics. — Ca- tho- liques.	Ch. of Eng- land. — Eglise d'An- gle- terre.	Me- tho- dists — Mé- tho- dis- tes.	Pres- byte- rians. — Pres- byté- riens.	Pro- tes- tants	Other Deno- mina- tions. — Autr's con- fes- sions.	Cities and Towns—Villes.	Rural Districts—Districts ruraux.
Eng- land and Wales — Angle terre et Galles	Ire- land. — Ir- lande.	Scot- land. — Ecos- se.													
.....													
TENTATIVE DE SUICIDE—Fin.															
.....	1	.....	.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....
.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....
1	1	1	.....	2	.....	.....	.....	3	.....	2	.....	.....	.....	5	.....
1	1	1	1	2	.....	.....	.....	1	3	.....	2	.....	.....	6	.....
TENANT ET FRÉQUENTANT DES MAISONS DE DÉSORDRE.															
.....	.....	.....	4	.....	.....	.....	.....	.....	.....	.....	3	1	.....	4	.....
.....	.....	.....	14	4	.....	.....	3	8	.....	4	3	.....	.....	18	.....
.....	1	.....	1	1	.....	.....	.....	.....	.....	3	.....	.....	.....	3	1
.....	.....	.....	4	.....	.....	.....	.....	4	.....	.....	.....	.....	.....	3	1
.....	1	.....	5	1	.....	.....	.....	4	.....	3	.....	.....	.....	3	4
.....	.....	.....	2	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	1	1
.....	.....	.....	4	.....	.....	.....	.....	4	.....	.....	.....	.....	.....	4	.....
.....	.....	.....	2	.....	.....	.....	.....	.....	.....	1	1	.....	.....	2	.....
1	.....	.....	1	.....	.....	.....	.....	.....	1	.....	.....	1	.....	1	1
.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	1	1	.....
1	.....	.....	9	1	.....	.....	.....	6	1	1	1	1	1	10	2
.....	2	1	4	2	2	.....	.....	6	.....	.....	.....	3	2	11	.....
.....	.....	.....	1	1	1	.....	.....	.....	.....	.....	1	2	.....	3	.....
.....	2	1	5	3	3	.....	.....	6	.....	.....	1	5	2	14	.....
1	3	1	37	9	3	.....	3	24	1	8	8	7	3	49	6
BRIS DE PRISON, ÉVASION ET TENTATIVE D'ÉVASION.															
.....	.....	.....	.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....
.....	.....	.....	.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....
.....	.....	.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....
.....
.....	.....	.....	2	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	.....	2
.....	.....	.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....
.....	.....	.....	2	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	2
.....	.....	.....	2	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	2	.....

TABLE I. OTHER OFFENCES NOT INCLUDED IN THE FOREGOING CLASS VI. CLASSES.

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDICIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	Persons charged. — Per- sonnes accusées	Ac- quit- ted. — Ac- quit- tés.	De- tained for Lu- nacy. — Em- pri- son- nés pour cause de folie.	CONVICTIONS. — CONDEMNATIONS.				SENTENCE.		
				Total.	Con- victed 1st. — Con- dam- nés une fois.	Con- victed 2nd. — Con- dam- nés deux fois.	Reite- rated. — Plus de 2 rédi- ves.	COMMITTED TO GAOL — EMPRISONNÉS.		
								With the option of a fine. — Sur option entre la pri- son ou l'a- me'de	— SANSACTION	
									Un- der one year. — Moins d'un an.	One year and over. — Un an et plus.
PRISON BREACH, ESCAPE AND ATTEMPT TO ESCAPE FROM PRISON— <i>Concluded.</i>										
Peel, Ont.	2	.....	.....	2	.....	1	1	.....	1	.....
Totals of Ontario	8	.....	.....	8	.....	6	2	.....	2	2
New Westminster, B.C.	1	.....	.....	1	.....	1	.....	.....	1	.....
Victoria, B.C.	2	.....	.....	2	.....	1	1	.....	2	.....
Totals of British Columbia.	3	.....	.....	3	.....	2	1	.....	3	.....
Alberta, Southern, N.W.T.	2	.....	.....	2	.....	1	1	.....	.....	2
Totals of Canada	17	.....	.....	17	.....	11	6	.....	8	4
CONSPIRACY.										
Halifax, N.S.	2	2	.....	.....	.....	.....	.....	.....	.....	.....
Montreal, Que.	2	2	.....	.....	.....	.....	.....	.....	.....	.....
Totals of Canada	4	4	.....	.....	.....	.....	.....	.....	.....	.....
VARIOUS OTHER MISDEMEANORS.										
Halifax, N.S.	4	.....	.....	4	4	.....	.....	.....	.....	.....
Beauharnois, Que.	1	.....	.....	1	1	.....	.....	.....	.....	.....
Joliette, Que.	1	.....	.....	1	1	.....	.....	.....	.....	.....
Montreal, Que.	33	9	.....	24	24	.....	.....	23	1	.....
Quebec, Que.	1	.....	.....	1	1	.....	.....	.....	.....	.....
Rimouski, Que.	2	.....	.....	2	2	.....	.....	.....	2	.....
St. Francis, Que.	2	.....	.....	2	2	.....	.....	1	1	.....
Terrebonne, Que.	1	.....	.....	1	1	.....	.....	1	.....	.....
Three Rivers, Que.	*2	.....	.....	1	1	.....	.....	.....	1	.....
Totals of Quebec	43	9	.....	33	33	.....	.....	25	5	.....
Brant, Ont.	1	.....	.....	1	1	.....	.....	.....	.....	.....
Elgin, Ont.	1	.....	.....	1	1	.....	.....	1	.....	.....
Grey, Ont.	4	3	.....	1	1	.....	.....	1	.....	.....
Hastings, Ont.	1	.....	.....	1	1	.....	.....	.....	.....	.....
Huron, Ont.	1	.....	.....	1	.....	1	.....	.....	.....	.....
Kent, Ont.	1	1	.....	.....	.....	.....	.....	.....	.....	.....
Lambton, Ont.	1	1	.....	.....	.....	.....	.....	.....	.....	.....
Middlesex, Ont.	3	.....	.....	3	3	.....	.....	.....	.....	.....
Renfrew, Ont.	1	.....	.....	1	1	.....	.....	.....	1	.....
Thunder Bay, Ont.	2	.....	.....	2	2	.....	.....	2	.....	.....
Stormont, D'das & Glengarry, O.	2	.....	.....	2	2	.....	.....	2	.....	.....
Waterloo, Ont.	1	.....	.....	1	1	.....	.....	.....	.....	.....
Wellington, Ont.	1	1	.....	.....	.....	.....	.....	.....	.....	.....
Wentworth, Ont.	11	3	.....	8	7	.....	1	2	.....	.....
York, Ont.	10	1	.....	9	9	.....	.....	3	2	.....
Totals of Ontario ...	41	10	.....	31	29	1	1	11	3	.....
Assiniboia, Western, N.W.T. ...	1	.....	.....	1	1	.....	.....	.....	+1	.....
Totals of Canada	89	19	.....	69	67	1	1	36	9	.....

*1 nolle prosequi.

†Both gaol and fined.—La prison et l'amende.

TABLEAU I. AUTRES DÉLITS NON COMPRIS DANS LES CLASSES CLASSE VI. PRÉCÉDENTES —Fin.														
SENTENCE.						OCCUPATIONS.						CIVIL CONDITIONS.		
PENITENTIARY. PÉNITENCIER.			D'th. — De mort	Com- mit- ted to Refor- ma- tories. — En- voyés à la prison de Réfor- me.	Other Senten- ces. — Autres Senten- ces.	Agricultural. — Agriculteurs.	Com- mer- cial. — Com- merçants.	Domestic — Servi- teurs.	Indus- trial. — Indus- triels.	Profes- sional — Profes- sions libé- rales.	La- borers — Jour- na- liers.	Mar- ried. — Mariés.	Wid- owed — En- veu- vage.	Single — Céli- ba- taires.
Two years and un- der five. — Deux ans et moins de cinq.	Five years and over. — Cinq ans et plus.	Life. — A vie												
BRIS DE PRISON, ÉVASION ET TENTATIVE D'ÉVASION—Fin.														
.....	1a.	.....	.....	.....	2	.....	.....	.....	.....	2
1	3a.	1	.....	.....	3	.....	2	1	.....	6
.....	2	.....	.....	2
.....	2	.....	.....	2
.....	1	.....	.....	1	.....	.....	2
1	4a.	2	.....	1	3	.....	7	2	2	10
CONSPIRATION.														
.....
.....
DIVERS AUTRES DÉLITS.														
.....	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	4
.....	1	.....	.....	.....	.....	.....	1	.....	.....	.....	1
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
.....	2	5	1	8	1	5	4	1	19
.....	1a.	.....	.....	.....	.....	.....	1	.....	.....	.....
.....	2	.....	.....	.....	.....	.....	.....	.....	2
.....
.....	1	.....	.....	1
.....
.....	2	1a.	4	5	1	8	2	8	4	4	25
.....	1	.....	.....	.....	.....	.....	1	.....	.....	.....	1
.....	1	.....	.....	.....	.....	1	.....	.....
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
.....	1a.	.....	1	.....	.....	.....	.....	1	.....	.....
.....
.....	2	1b.	.....	.....	.....	1	.....	.....	1	.....	2
.....	1	.....	.....	1
1	2	1	.....	1
.....	1	.....	.....	.....
.....	1	5a.	1	1	1	1	.....	2	3	.....	5
.....	1	3b.	.....	4	.....	2	.....	1	5	.....	4
1	6	6a, 4b.	1	7	1	4	2	7	13	.....	18
.....
1	12	7a, 4b.	5	12	2	12	4	15	17	4	47

7e—9½

a { Sentence deferred.
Sentence remise.

b { Bound to keep the peace.
Tenus de garder la paix.

TABLE I. OTHER OFFENCES NOT INCLUDED IN THE FOREGOING CLASS VI.
CLASSES—*Concluded.*

JUDICIAL DISTRICTS IN WHICH OFFENCE COMMITTED. — DISTRICTS JUDI- CIAIRES OU L'OFFENSE A ÉTÉ COMMISE.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.										USE OF LIQUORS. — USAGE DE LIQUEURS	
	Un- able to read or write. — Inca- pable de lire ou d'é- crire.	Ele- men- tary. — Elé- men- taire.	Super- rior. — Supé- rieure	Under 16 years.	16 years and under 21.	21 years and under 40.	40 years and over.	Not given.	Mo- de- rate — Im- mo- de- rate						
				Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non- donné.							
				M.	F.	M.	F.	M.			F.	M.	F.		
				H.	F.	H.	F.	H.			F.	H.	F.		
PRISON BREACH, ESCAPE AND ATTEMPT TO ESCAPE FROM PRISON— <i>Concluded.</i>															
Peel, Ont.	2					2								2	
Totaux d'Ontario.	7			2	2	4							2	5	
New-Westminster, Col.-B.									1						
Victoria, Col.-B.	2					1		1					2		
Totaux de la Col.-Britann.	2					1		1		1			2		
Alberta, Sud, T. du N.-O.	2				1	1							2		
Totaux du Canada	3	11		2	3	6		4		2			7	7	
CONSPIRACY.															
Halifax, N.-E.															
Montréal, Qué.															
Totaux du Canada.															
VARIOUS OTHER MISDEMEANORS.															
Halifax, N.-E.	4		4										4		
Beauharnois, Qué.					1								1		
Joliette, Qué.	1			1									1		
Montréal, Qué.	7	16	1	2	5	17							12	12	
Québec, Qué.	1					1								1	
Rimouski, Qué.	2				2								2		
St. François, Qué.		1	1			1					1		2		
Terrebonne, Qué.	1									1			1		
Trois-Rivières, Qué.			1			1							1		
Totaux de Québec.	8	21	3	2	1	8		20		1	1	20	13		
Brant, Ont.				1									1		
Elgin, Ont.			1						1				1		
Grey, Ont.	1								1				1		
Hastings, Ont.	1		1										1		
Huron, Ont.	1							1					1		
Kent, Ont.															
Lambton, Ont.															
Middlesex, Ont.		3		2		1							2	1	
Renfrew, Ont.	1					1							1		
Storm't, D'das et Gleng'ry, O.		2				1		1					2		
Thunder Bay, Ont.		2				1		1					2		
Waterloo, Ont.		1			1									1	
Wellington, Ont.															
Wentworth, Ont.	1	7		1	2	3	1	1					7	1	
York, Ont.		6	3	1	2	4		2					8	1	
Totaux d'Ontario.	2	24	4	6	5	1	10	2	7				26	5	
Assiniboia, Ouest, T. du N.-O.											1				
Totaux du Canada.	10	49	7	12	1	13	1	30	2	7		2	1	50	18

TABLEAU I. AUTRES DÉLITS NON COMPRIS DANS LES CLASSES CLASSE VI. PRÉCÉDENTES —Fin.														
BIRTH PLACES. LIEUX DE NAISSANCE.							RELIGIONS.						RESI- DENCE.	
BRITISH ISLES. — ILES BRITANNIQUES.			Ca- nada.	United States — Etats- Unis.	Other Fo- reign Coun- tries. — Autr's posses- sions étran- gers.	Other Bri- tish Pos- ses- sions. — Autr's posses- sions Bri- tanni- ques.	Bap- tists. — — Bap- tistes.	R. Ca- tho- lics. — — Catho- liques.	Ch. of Eng- land. — — Eglise d'An- gle- terre.	Me- tho- dists. — — Métho- dis- tes.	Pres- byte- rians. — — Pres- byté- riens.	Pro- tes- tants — — Autr's con- fes- sions.	Other Deno- mina- tions. — — Autr's con- fes- sions.	
Eng- land and Wales — Angle terre et Galles	Ire- land. — Ir- lande.	Scot- land. — Ecos- se.												
BRIS DE PRISON, ÉVASION ET TENTATIVE D'ÉVASION—Fin.														
.....	2	.....	.....	.....	.....	.....	2	.....	.....	.....	.....	2
.....	7	.....	.....	.....	.....	1	2	2	2	.....	.....	4 4
.....	2	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	1 2
.....	2	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	3
.....	1	1	.....	.....	.....	.....	1	.....	1	.....	.....	2
.....	12	2	.....	.....	.....	6	2	3	2	1	.....	10 7
CONSPIRATION.														
.....
.....
.....
DIVERS AUTRES DÉLITS.														
.....	4
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1
3	1	.....	20	.....	.....	.....	1	19	2	.....	2	.....	.....	14 10
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1
.....	2	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	2
.....	1	1	.....	.....	.....	1	.....	.....	.....	1	.....	1
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1
3	1	.....	28	1	.....	.....	1	27	2	.....	2	1	.....	19 14
.....
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1
.....	1	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1
.....
.....	1	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	3
.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1
.....	2	.....	.....	.....	.....	.....	.....	1	2	.....	.....	2
1	2	.....	.....	.....	.....	.....	.....	1	1	.....	.....	1
2	1	.....	5	.....	.....	.....	.....	2	5	1	.....	.....	.....	8
.....	4	1	3	1	.....	.....	.....	4	2	1	1	.....	.....	9
3	5	2	17	1	.....	.....	1	7	9	3	6	1	.....	28 3
.....
6	6	2	45	2	.....	.....	2	34	11	3	8	2	.....	51 17

TABLE II.

SUMMARY BY CLASSES AND PROVINCES, WITH TOTALS OF EACH
PROVINCE AND OF CANADA.

TABLEAU II.

RÉCAPITULATION PAR CLASSES ET PAR PROVINCES, AVEC TOTAUX
DE CHAQUE PROVINCE ET DU CANADA.

TABLE II. SUMMARY BY CLASSES AND PROVINCES.

PROVINCES.	Persons charged.	Acquit- ted.	De- tained for Lu- nacy.	CONVICTIONS. — CONDAMNATIONS.				SENTENCE.		
				Total.	Con- victed 1st.	Con- victed 2nd.	Reite- rated.	COMMITTED TO GAOL — EMPRISONNÉS.		
								With the option of a fine.	NO OPTION.	
									SANS OPTION	—
	Per- sonnes accu- sées.	Ac- quit- tés.	Em- pri- son- nés pour cause de folie.		—	—	—	— Sur option entre la pri- son ou l'a- m'nde	Un- der one year.	One year and over.
					Con- dam- nés une fois.	Con- dam- nés deux fois.	Plus de 2 réci- des.		Moins d'un an.	Un an et plus.
CLASS I.—OFFENCES AGAINST THE PERSON.										
Prince Edward Island.....	11	1	...	10	10	...	...	2	8	...
Nova Scotia.....	45	18	1	24	23	1	...	4	10	2
New Brunswick.....	32	8	1	22	22	...	...	12	9	...
Quebec.....	533	146	1	379	358	15	6	214	59	11
Ontario.....	728	319	4	398	372	13	13	121	154	21
Manitoba.....	32	10	...	22	22	...	...	13	4	...
British Columbia.....	50	6	...	44	42	2	...	21	8	2
The Territories.....	17	7	...	8	8	...	...	1	4	...
Totals of Canada.....	1,448	515	7	907	857	31	19	388	256	36
CLASS II.—OFFENCES AGAINST PROPERTY WITH VIOLENCE.										
Prince Edward Island.....	4	...	...	4	4	...	...	...	...	...
Nova Scotia.....	28	14	...	14	10	3	1	...	6	1
New Brunswick.....	3	...	...	3	3	...	...	...	2	...
Quebec.....	94	15	...	79	62	6	11	...	21	4
Ontario.....	270	116	...	154	134	12	8	...	69	18
Manitoba.....	13	7	...	6	5	...	1	...	2	...
British Columbia.....	19	2	...	16	16	...	...	...	2	3
The Territories.....	10	3	...	7	6	1	...	...	1	1
Totals of Canada.....	441	157	...	283	240	22	21	...	103	27
CLASS III.—OFFENCES AGAINST PROPERTY WITHOUT VIOLENCE.										
Prince Edward Island.....	22	11	...	11	9	2	...	...	9	...
Nova Scotia.....	111	29	...	77	64	8	5	...	49	2
New Brunswick.....	76	30	...	46	42	2	2	6	32	...
Quebec.....	1,058	196	1	820	640	84	96	49	497	8
Ontario.....	2,160	785	1	1,372	1,276	50	46	47	779	86
Manitoba.....	88	25	...	61	50	8	3	...	40	...
British Columbia.....	86	20	...	65	60	4	1	...	47	8
The Territories.....	63	15	...	46	45	1	...	...	31	6
Totals of Canada.....	3,644	1,111	2	2,498	2,186	159	153	102	1,484	110
CLASS IV.—MALICIOUS OFFENCES AGAINST PROPERTY.										
Prince Edward Island.....	...	...	...	...	...	...	...	...	...	...
Nova Scotia.....	7	2	1	1	1	...	...	...	...	...
New Brunswick.....	5	1	...	4	4	...	...	4	...	...
Quebec.....	25	15	...	10	9	1	...	...	3	...
Ontario.....	61	37	...	24	22	2	...	6	7	...
Manitoba.....	2	1	...	1	...	...	1	...	1	...
British Columbia.....	3	1	...	2	2	...	...	...	...	...
The Territories.....	9	1	...	8	8	...	...	1	3	...
Totals of Canada.....	112	58	1	50	46	3	1	11	14	...

TABLEAU II. RÉCAPITULATION PAR CLASSES ET PROVINCES.														
SENTENCE.						OCCUPATIONS.						CIVIL CONDITIONS.		
PENITENTIARY. — PÉNITENCIER.			D'th. — De mort	Com- mit- ted to Refor- ma- to- ries — En- voyés à la prison de Réfor- me.	Other Senten- ces. — Autres Senten- ces.	Agricultural. — Agriculteurs.	Com- mer- cial. — Com- merçants.	Do- mestic — Servi- teurs.	In- dus- trial. — Indus- triels.	Pro- fes- sional — Pro- fes- sions libé- rales.	La- borers — Jour- na- liers.	Mar- ried. — Mariés.	Wi- dowed — En- veu- vage.	Single — Céli- bataires.
Two years and under five.	Five years and over.	Life.												
D'un ans et m'ns de cinq.	Cinq ans et plus.	A vie												
CLASSE I.—OUTRAGES CONTRE LA PERSONNE.														
6	1				1b.	4	3	1	4	2	2	5		5
1						4	3			7	7	5		19
6	6		2	3	77a, 1b.	17	61	9	92	12	155	198	9	172
12	15	1	3	1	65a, 4b, 1c	44	36	11	73	2	194	188	6	190
1					4a.	6	3		5		5	13		9
4	6	1	2			2	4	1	9		14	5	1	29
1	2					2					2	2		
31	30	2	7	4	146a, 6b, 1c	79	111	22	193	18	383	426	16	435
CLASSE II.—DELITS AVEC VIOLENCE CONTRE LA PROPRIÉTÉ.														
4											1			4
3	2			2		2	3		2		5	3		11
1											2			3
25	8			15	6a.		3		19		42	12	1	66
27	15			5	20a.	2	9	3	29	1	81	31	2	119
2	2								2		2	2		4
7	2				2a.		1	1	5		3		1	9
5						1					4	1		6
74	29			22	28a.	5	16	4	57	1	140	49	4	222
CLASSE III.—DELITS SANS VIOLENCE CONTRE LA PROPRIÉTÉ.														
2						1	3		1		4	4		7
21	2				3a.	7	4	9	10	5	24	14	4	57
3					5b.		1	1	3		19	8		36
59	20			92	95a.	22	126	24	175	6	260	198	48	572
58	20			61	301a, 20b.	44	99	80	132	5	608	276	22	1,029
9	1				11a.	5	5	4	15	3	22	11		50
9	1						12	5	12	1	22	4		50
5	1				3a.	7	1		1	2	6	6		20
166	45			153	413a, 25b.	86	251	123	349	22	965	521	74	1,821
CLASSE IV.—OFFENSES MALICIEUSES CONTRE LA PROPRIÉTÉ.														
1											1	1		
2	1			2	2a.	2	3		1		2	5		4
2	7				2a.	6	2	1	2		9	8	3	12
									1					1
1					1a.	1								1
3	1					2					4	5		1
9	9			2	5a.	11	5	1	4		16	19	3	24

TABLE II. SUMMARY BY CLASSES AND PROVINCES.

PROVINCES.	EDUCATIONAL STATUS. — INSTRUCTION.						AGES.						USE OF LIQUORS. — USAGE DE LIQUEURS		
	Un-able to read or write.	Ele-men-tary.	Super-ior.	Under 16 years.	16 years and under 21.	21 years and under 40.	40 years and over.	Not given.	Mo-de-rate	Im-mo-de-rate					
				Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non-donné.							
				M. F	M. F	M. F	M. F	M. F			M. F				
	Inca-pable de lire ou d'é-crire.	Elé-men-taire.	Supé-rieure	M. F	M. F	M. F	M. F	M. F	M. F	Mo-déré	Im-mo-déré				
CLASS I.—OFFENCES AGAINST THE PERSON.															
Ile du Prince-Edouard.....	8	2	1	3	5	3	1	3	19	6					
Nouvelle-Ecosse.....	1	22	1	1	3	15	2	3	19	5					
Nouveau-Brunswick.....	2	5	1	3	10	2	5	1	6	4					
Québec.....	109	264	5	5	29	2	52	11	48	3	27	71	309		
Ontario.....	54	319	8	6	59	3	208	12	85	6	18	1	217	164	
Manitoba.....	1	13	1	1	9	5	1	6	15	6					
Colombie-Britannique.....	12	21	1	1	21	12	10	22	12						
Les Territoires.....					1	1	6								
Totaux du Canada.....	179	652	18	14	95	5	521	25	161	12	71	3	354	506	
CLASS II.—OFFENCES AGAINST PROTERTY WITH VIOLENCE.															
Ile du Prince-Edouard.....	4	2	3	4	2	1	4	13	1						
Nouvelle-Ecosse.....	1	13	2	4	4	2	2	13	1						
Nouveau-Brunswick.....	1	2	3					3							
Québec.....	25	54	19	1	12	38	6	2	1	32	46				
Ontario.....	16	137	26	60	56	1	8	3		94	58				
Manitoba.....	1	5	2	2	4					3	3				
Colombie-Britannique.....	2	8	1	1	5	3	6	8	2						
Les Territoires.....		5	2	2	2	1	2	5							
Totaux du Canada.....	46	228	47	1	87	1	109	1	20	16	1	162	110		
CLASS III.—OFFENCES AGAINST PROPERTY WITHOUT VIOLENCE.															
Ile du Prince-Edouard.....	9	2	2	6	3	6	5	3	1						
Nouvelle-Ecosse.....	16	57	2	8	1	16	2	25	4	7	5	9	59	16	
Nouveau-Brunswick.....	4	34	13	8	13	2	8	13	2	8	2	2	24	15	
Québec.....	327	444	6	144	12	104	11	421	32	68	10	17	1	331	486
Ontario.....	269	1,033	28	330	10	286	19	453	51	162	20	41		910	416
Manitoba.....	6	50	5	5	14	36	3	3	3					26	35
Colombie-Britannique.....	14	39	1	4	38	3	10	13	36	17				36	17
Les Territoires.....	7	12	3	2	6	11	3	24	22						
Totaux du Canada.....	643	1,678	47	504	23	438	32	1003	92	264	35	106	1	1414	990
CLASS IV.—MALICIOUS OFFENCES AGAINST PROPERTY.															
Ile du Prince-Edouard.....															
Nouvelle-Ecosse.....	1							1						1	
Nouveau-Brunswick.....			3				1								
Québec.....	6	4	2			6	1	1					6	4	
Ontario.....	2	21	2	4		9	2	5	1	1	18	5			
Manitoba.....	1					1							1		
Colombie-Britannique.....	1					1				1			1		
Les Territoires.....	2	3				4		2		2	3	1			
Totaux du Canada.....	10	31		7	4	21	4	9	1	4			28	12	

TABLEAU II. RÉCAPITULATION PAR CLASSES ET PROVINCES.																
BIRTH PLACES. LIEUX DE NAISSANCE.							RELIGIONS.							RESI- DENCE.		
BRITISH ISLES. ILES BRITANNIQUES.			Can- ada.	United States — Etats- Unis.	Other Fo- reign Coun- tries. — Aut- res pays étran- gers.	Other Bri- tish Pos- ses- sions. — Autr's posses- sions Bri- tanni- ques.	Bap- tists. — Bap- tistes.	R. Ca- tho- lics. — Ca- tholi- ques.	Ch. of Eng- land. — Eglise d'An- gle- terre.	Me- tho- dists — Mé- tho- dis- tes.	Pres- byte- rians. — Pres- byte- riens.	Pro- tes- tants — Autr's con- fes- sions.	Other Deno- mina- tions. — Autr's con- fes- sions.	Cities and Towns—Villes.	Rural Districts—Districts ruraux.	
Eng- land and Wales — Angle terre et Galles	Ire- land. — Ir- lande.	Scot- land. — Ecos- se.														
CLASSE I.—OUTRAGES CONTRE LA PERSONNE.																
.....	1	.....	10	.....	.....	.....	.....	8	.....	.....	.....	2	.....	9	1	.....
.....	.....	.....	19	3	1	.....	5	8	2	2	5	1	1	11	13	.....
1	.....	.....	19	.....	1	.....	3	10	.....	1	1	5	1	17	4	.....
19	28	4	298	4	24	2	1	327	8	.....	4	32	7	319	60	.....
44	50	11	255	16	12	.....	3	136	91	67	41	25	21	280	110	.....
7	.....	2	10	1	1	.....	.....	1	6	3	6	3	2	15	7	.....
3	2	1	16	7	7	.....	.....	11	2	.....	1	10	12	27	14	.....
.....	.....	.....	1	1	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	3	.....
74	81	18	628	32	46	2	12	501	109	73	58	78	46	678	212	.....
CLASSE II.—DÉLITS AVEC VIOLENCE CONTRE LA PROPRIÉTÉ.																
.....	.....	.....	4	.....	.....	.....	.....	1	.....	.....	.....	3	.....	3	1	.....
.....	.....	.....	13	.....	1	.....	1	3	2	3	1	3	1	8	6	.....
.....	.....	.....	3	.....	.....	.....	.....	2	.....	.....	.....	1	.....	2	1	.....
5	2	1	68	1	1	.....	.....	63	3	.....	5	7	.....	53	26	.....
10	14	4	107	13	5	1	10	54	33	27	10	13	6	133	21	.....
2	1	.....	2	1	.....	.....	.....	4	.....	.....	1	.....	1	5	1	.....
2	.....	1	3	4	.....	.....	.....	6	2	.....	1	1	.....	11	5	.....
1	1	1	2	.....	.....	.....	.....	1	3	.....	1	.....	.....	5	2	.....
20	18	7	202	19	7	1	11	130	47	30	19	28	8	220	63	.....
CLASSE III.—DÉLITS SANS VIOLENCE CONTRE LA PROPRIÉTÉ.																
.....	1	.....	10	.....	.....	.....	.....	7	.....	1	1	2	.....	8	3	.....
3	2	.....	63	3	.....	1	11	20	11	12	9	8	4	46	29	.....
3	.....	1	37	.....	1	.....	4	17	4	14	2	1	.....	38	8	.....
30	25	4	725	17	17	1	6	715	39	15	10	14	10	668	142	.....
155	98	29	937	88	29	4	33	417	383	219	133	101	49	1121	227	.....
22	5	2	21	4	4	.....	.....	19	18	9	4	11	.....	45	16	.....
8	2	4	16	9	16	1	.....	15	1	1	1	24	12	53	10	.....
3	.....	2	13	4	.....	.....	.....	1	3	6	2	5	5	13	17	.....
224	133	42	1,822	125	67	7	54	1211	459	277	162	166	80	1992	452	.....
CLASSE IV.—OFFENSES MALICIEUSES CONTRE LA PROPRIÉTÉ.																
.....	.....	.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	1	.....
.....	.....	.....	4	.....	.....	.....	.....	3	.....	.....	.....	1	.....	4	.....	.....
.....	1	.....	8	1	.....	.....	.....	9	.....	.....	.....	1	.....	7	3	.....
3	2	.....	17	.....	1	.....	.....	4	7	4	3	1	4	11	12	.....
.....	.....	.....	.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....	.....
.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1	1	.....
.....	.....	.....	4	2	.....	.....	.....	2	.....	.....	.....	1	2	4	4	.....
3	3	1	34	3	2	.....	.....	20	7	4	3	5	6	28	21	.....

TABLE II. SUMMARY BY CLASSES AND PROVINCES.

PROVINCES.	Persons charged	Acquit- ted.	De- tained for Lu- nacy.	CONVICTIONS. — CONDEMNATIONS.				SENTENCE.			
								COMMITTED TO GOAL — EMPRISONNÉS.			
				Total.	Con- victed 1st.	Con- victed 2nd.	Reite- rated.	With the option of a fine.	No OPTION. — SANS OPTION		
									Un- der one year.	One year and over.	
	Per- sonnes accu- sées.	Ac- quit- tés.	Em- pri- son- nés pour cause de folie.		— Con- dam- nés une fois.	— Con- dam- nés deux fois.	— Plus de 2 réci- ves.	Sur option entre la pri- son ou l'a- m'nde	Moins d'un an.	Un an et plus.	

CLASS V.—FORGERY AND OFFENCES AGAINST THE CURRENCY.

Prince Edward Island.....	2	.....	.....	2	2	.....	.....	.....	.....	.....
Nova Scotia.....	2	.....	.....	2	2	.....	.....	.....	.....	.....
New Brunswick.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Quebec.....	21	12	.....	9	6	2	1	.....	1	5
Ontario.....	37	15	.....	22	20	1	1	.....	6	1
Manitoba.....	2	.....	.....	2	2	.....	.....	.....	2	.....
British Columbia.....	1	.....	.....	1	1	.....	.....	.....	.....	.....
The Territories.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Totals of Canada.....	63	27	.....	36	31	3	2	.....	9	6

CLASS VI.—OTHER OFFENCES NOT INCLUDED IN THE FOREGOING CLASSES.

Prince Edward Island.....	4	.....	.....	4	3	.....	1	.....	3	.....
Nova Scotia.....	12	6	.....	6	6	.....	.....	.....	2	.....
New Brunswick.....	24	3	.....	21	19	2	.....	15	5	.....
Quebec.....	82	21	.....	59	56	.....	3	27	15	1
Ontario.....	118	39	.....	76	60	11	5	14	19	2
Manitoba.....	14	13	.....	1	.....	1	.....	.....	.....	.....
British Columbia.....	17	.....	.....	17	14	2	1	14	3	.....
The Territories.....	9	2	.....	6	4	1	1	.....	3	2
Totals of Canada.....	280	84	.....	190	162	17	11	70	50	5

GRAND TOTALS BY PROVINCES.

Prince Edward Island.....	41	12	.....	29	26	2	1	2	20	.....
Nova Scotia.....	205	69	2	124	106	12	6	4	67	5
New Brunswick.....	140	42	1	96	90	4	2	37	48	.....
Quebec.....	1,793	405	2	1,356	1,131	108	117	290	596	29
Ontario.....	3,374	1,311	5	2,046	1,884	89	73	188	1,034	128
Manitoba.....	151	56	.....	93	79	9	5	13	49	.....
British Columbia.....	176	29	.....	145	135	8	2	35	60	13
The Territories.....	108	28	.....	75	71	3	1	2	42	9
Grand Totals of Canada.....	5,988	1,952	10	3,964	3,522	235	207	571	1,916	184

TABLEAU II. RÉCAPITULATION PAR CLASSES ET PROVINCES.

SENTENCE.						OCCUPATIONS.						CIVIL CONDITIONS.		
PENITENTIARY. — PÉNITENCIER.			D'th.	Com- mit- ted to Refor- ma- to- ries.	Other Senten- ces.	Agricultural.	Com- mer- cial.	Do- mestic	Indus- trial.	Pro- fes- sional	La- borers	Mar- ried.	Wi- dowed	Single
Two years and un- der five.	Five years and over.	Life.												
Deux ans et m's de cinq.	Cinq ans et plus.	A vie	De mort	En- voyés à la prison de Réfor- me.	Autres Senten- ces.	—	—	—	—	—	—	—	—	—
						Agri- cul- teurs.	Com- mer- çants.	Servi- teurs.	Indus- triels.	Pro- fes- sions libé- rales.	Jour- na- liers.	Ma- riés.	En- veu- vage.	Céli- ba- taires.

CLASSE V.—FAUX ET DÉLITS PAR RAPPORT À LA MONNAIE.

2									1		1			2
1	1				1a.	9	4	3	2	2	2	4		5
7	4				4a.		1		1		7	8	2	12
1									1		1	1		1
											1			1
11	5				5a.	9	5	3	5	2	12	13	2	21

CLASSE VI.—AUTRES DÉLITS NON COMPRIS DANS LES CLASSES PRÉCÉDENTES.

1				4			1		1			3		1
				1a.					1		1	1		5
2	1			3	8a, 2b.	6	10	2	10	3	15	10	8	12
4				12	18a, 7b.	6	13	4	10	4	18	32	2	41
				1										39
									4		6	3		1
1								1		1	2			13
														4
8	1			20	27a, 9b.	12	24	7	26	9	42	55	12	116

GRANDS TOTAUX PAR PROVINCES.

7						1	7		6		7	12		17
33	5			6	3a, 1b.	13	10	10	20	8	38	24	4	94
5					1a, 5b.	4	2	1	8	2	28	24	2	66
95	37		2	115	189a, 3b.	47	207	35	297	23	476	427	66	861
110	61	1	3	79	410a 31b 1c	111	160	102	248	12	917	543	37	1,401
12	3			1	15a.	11	8	4	24	3	30	27		66
22	9	1	2		3a.	3	17	7	30	1	46	12	2	103
15	4				3a.	12	1	1	1	3	16	14		31
299	119	2	7	201	624a 40b 1c	202	412	160	634	52	1,558	1,083	111	2,639

TABLE II.

SUMMARY BY CLASSES AND PROVINCES.

PROVINCES.	EDUCATIONAL STATUS. — INSTRUCTION.			AGES.										USE OF LIQUORS. — USAGE DE LIQUEURS	
	Un-able to read or write.	Elé-men-tary.	Supe-rior.	Under 16 years.	16 years and under 21.	21 years and under 40.	40 years and over.	Not given.							
	—	—	—	Moins de 16 ans.	16 ans et moins de 21.	21 ans et moins de 40.	40 ans et plus.	Non donné.	Mo-dé-rate	Im-mo-dé-rate					
	Inca-pable de lire ou d'écrire.	Elé-men-taire.	Supé-rieure	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	M. F.	Mo-déré	Im-mo-déré			

CLASS V.—FORGERY AND OFFENCES AGAINST THE CURRENCY.

Ile du Prince-Edouard															
Nouvelle-Ecosse		2			1	1							2		
Nouveau-Brunswick															
Québec	7	2			2	5	1						3	6	
Ontario	4	17	1		2	15	2	2				1	19	3	
Manitoba		2				2							2		
Colombie-Britannique		1				1							1		
Les Territoires															
Totaux du Canada	4	29	3		5	24	2	3			2		27	9	

CLASS VI.—OTHER OFFENCES NOT INCLUDED IN THE FOREGOING CLASSES.

Ile du Prince-Edouard		4					1	2		1			3	1	
Nouvelle-Ecosse	1	5		4			1		1				6		
Nouveau-Brunswick	7	12			1	3	3	2	4	7	1		19		
Québec	17	38	3	4	2	11	1	29	4	5	1	1	29	30	
Ontario	5	61	6	8		11	4	23	7	18	1	1	3	49	24
Manitoba	1			1									1		
Colombie-Britannique	6	10					8	3	2			3	1	11	5
Les Territoires		4			1		3				2		4		
Totaux du Canada	37	134	9	17	2	24	8	68	18	30	10	8	5	103	79

GRAND TOTALS BY PROVINCES.

Ile du Prince-Edouard		25	4	2		4		12	2	6	2	1		17	12
Nouvelle-Ecosse	19	100	3	15	1	24	2	46	4	13	5	14		99	23
Nouveau-Brunswick	14	53	1	16		15	3	26	7	17	8	4		33	38
Québec	484	811	16	174	15	158	14	751	48	129	14	48	5	472	881
Ontario	350	1,588	43	372	10	422	26	764	75	280	28	65	4	1307	670
Manitoba	9	71	6	7		16		52	3	8	1	6		47	45
Colombie-Britannique	34	80	1	1		5	1	74	3	27		33	1	79	36
Les Territoires	9	24	3	2		9		21		7		36		34	1
Grands totaux du Canada	919	2,752	77	589	26	653	46	1746	142	487	58	207	10	2088	1706

TABLEAU II. RÉCAPITULATION PAR CLASSES ET PROVINCES.

BIRTH PLACES. LIEUX DE NAISSANCE.							RELIGIONS.							RESI- DENCE.	
BRITISH ISLES. ILES BRITANNIQUES.			Can- ada.	United States — Etats- Unis.	Other For- eign Coun- tries. — Autr's posses- sions étran- gers.	Other Bri- tish Pos- ses- sions. — Autr's posses- sions Bri- tanni- ques.	Bap- tists. — Bap- tistes.	R. Catho- lics. — Catho- liques.	Ch. of Eng- land. — Eglise d'An- gle- terre.	Me- tho- dists — Mé- tho- dis- tes.	Pres- byte- rians. — Pres- byté- riens.	Pro- tes- tants — Autr's con- fes- sions.	Other Deno- mina- tions. — Autr's con- fes- sions.	Cities and Towns — Villes. Rural Districts — Districts ruraux.	
Eng- land and Wales — Angle- terre et Galles	Ire- land. — Ir- lande.	Scot- land. — Ecos- se.													
CLASSE V.—FAUX ET DÉLITS PAR RAPPORT À LA MONNAIE.															
.....	.....	.....	2	.....	.....	.....	1	.....	.....	1	.....	.....	.....	2	.....
.....	.....	.....	8	1	.....	.....	7	.....	1	.....	.....	1	.....	6	3
3	2	1	14	.....	1	1	6	4	6	5	.....	1	1	7	15
1	.....	.....	.....	1	.....	.....	.....	1	1	.....	.....	.....	.....	1	1
.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
4	2	1	24	3	1	1	1	13	6	9	5	1	1	17	19
CLASSE VI.—AUTRES DÉLITS NON COMPRIS DANS LES CLASSES PRÉCÉDENTES.															
.....	.....	.....	4	.....	.....	.....	.....	.....	.....	3	1	.....	.....	4	.....
.....	.....	.....	2	.....	.....	.....	1	.....	.....	.....	.....	.....	1	5	.....
.....	.....	.....	15	5	.....	.....	3	9	4	3	1	.....	.....	20	1
4	2	.....	50	3	.....	.....	1	44	7	4	2	1	.....	35	24
6	8	3	46	7	.....	.....	4	15	16	14	13	4	3	61	15
.....	.....	.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....
.....	2	1	7	3	3	.....	8	.....	.....	1	5	2	.....	17	.....
.....	.....	.....	2	2	.....	.....	.....	.....	2	.....	2	.....	.....	4	.....
10	12	4	127	20	3	.....	9	77	23	24	22	14	6	146	40
GRANDS TOTAUX PAR PROVINCES.															
.....	1	.....	28	.....	.....	.....	.....	16	.....	1	4	8	.....	24	5
3	3	.....	100	6	2	1	19	32	15	18	15	12	7	72	49
4	.....	1	78	5	2	.....	10	41	4	19	6	9	1	81	14
58	58	9	1,157	27	42	3	8	1165	57	20	21	56	17	1088	258
221	174	48	1,376	124	48	6	50	632	534	337	205	144	83	1613	400
32	6	4	34	7	6	.....	.....	22	29	13	11	14	3	67	25
13	6	8	42	24	26	1	.....	40	6	1	4	41	26	110	30
4	1	3	22	9	.....	.....	.....	4	6	8	3	8	9	26	26
335	249	73	2,837	202	126	11	87	1952	651	417	269	292	146	3081	807

TABLE III.

SUMMARY CONVICTIONS.

TABLEAU III.

CONDAMNATIONS SOMMAIRES.

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	PROVINCE OF PRINCE EDWARD ISLAND.							
	KING'S.				PRINCE.			
	Sentence.				Sentence.			
	Con- vic- tions Total Con- dam- na- tions.	Op- tion of a fine. Sur option	Com- mitted without option. Empri- sonnés sans option.	De- ferred &c. Re- mise, etc.	Con- vic- tions Total Con- dam- na- tions.	Op- tion of a fine. Sur option	Com- mitted without option. Empri- sonnés sans option.	De- ferred &c. Re- mise, etc.
Adulteration of Food.....								
Assaults.....	2	2						
Breach of peace.....								
Carrying fire-arms and unlawful weapons.....								
Contempt of Court.....								
Cruelty to animals.....								
Disturbing religious and like meetings.....								
Fishery Acts, offences against.....								
Gambling Acts.....								
Game Laws.....								
Larceny.....								
“ of dogs, birds, &c.....								
“ of timber, trees, fruits, &c.....								
Liquor License Acts, offences against.....					1	1		
Breach of Canada Temperance Act.....	17	17			31	31		
Selling liquor during prohibited hours.....								
“ to Indians.....								
“ without licence.....								
Malicious injury to property.....								
Other damage to property.....								
Master's and Servant's Acts, offences against.....								
Medical Acts, offences against.....								
Militia Acts.....								
Miscellaneous minor offences.....								
Municipal Acts and By-Laws, breaches of.....								
Exercising various callings without license.....								
Health By-laws, offences against.....								
Highways, offences relating to.....								
Neglecting to support family.....								
Pharmacy Acts, offences against.....								
Profanation of the Lord's Day.....								
Railway Acts, offences against.....								
Revenue Laws.....								
Seamen Acts.....								
Statute Labor, offences relating to.....								
Threats and abusive language.....								
Trespass.....								
Vagrancy.....								
Drunkenness.....					41	41		
Indecent exposure.....	1	1						
Insulting, obscene and profane language.....								
Keeping, frequenting bawdy houses and inmates thereof.....								
Loose, idle, disorderly.....					15	15		
Weights and Measures Acts, offences against.....								
Insanity.....								
Totals.....	20	20			88	88		

TABLEAU III.—CONDAMNATIONS SOMMAIRES PAR MAGISTRATS DE POLICE
ET AUTRES JUGES DE PAIX.

PROVINCE DE L'ÎLE DU PRINCE-ÉDOUARD.							
QUEEN'S.				Totals of P.E. Island. — Totaux de l'Île du P.-E.			
Con- vic- tions Total	Sentence.			Con- vic- tions Total	Sentence.		
	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.
33	31		2	35	33		2
2	2			2	2		
41	31	10		89	79	10	
3	3			3	3		
7	7			7	7		
15	15			15	15		
5	5			5	5		
15	15			15	15		
1	1			1	1		
9	9			9	9		
9		9		9		9	
270	269	1		311	310	1	
1	1			1	1		
7	7			22	22		
418	396	20	2	526	504	20	2

OFFENSES.

Falsifications de substances alimentaires.
 Voies de fait.
 Troubler la paix.
 Port d'armes illégal.
 Mépris de cour.
 Cruauté envers les animaux.
 Perturbation de réunions religieuses et autres.
 Infractions aux lois des pêcheries.
 " défendant le jeu.
 " de chasse.
 Larcin.
 Vol de chiens, oiseaux, etc.
 " bois, arbres, fruits, etc.
 Infractions aux lois des licences de boissons.
 Contraventions aux lois de tempérance du Canada.
 Vente de boissons durant les heures défendues.
 " aux Sauvages.
 " sans licence.
 Dommages malicieux à la propriété.
 Autres dommages à la propriété.
 Infractions aux lois concernant les maîtres et serveurs.
 Infractions aux lois concernant la médecine.
 " de la milice.
 Divers petits délits.
 Contraventions aux lois municipales.
 Pratiquant divers états sans licence.
 Infractions aux lois sur l'hygiène publique.
 Délits ayant rapport aux chemins publics.
 Négligence de pourvoir aux besoins de la famille.
 Infract. aux lois concernant les pharmaciens.
 Profanation du dimanche.
 Infractions aux lois des chemins de fer.
 Délits contre le revenu de l'Etat.
 Infractions aux lois maritimes.
 Délits ayant rapport à la corvée.
 Menaces et langage injurieux.
 Empiètement.
 Vagabondage.
 Ivresse.
 Exposition indécente.
 Langage insultant, obscène, profane.
 Tenant, habitant et fréquentant des maisons de désordre.
 Conduite déréglée.
 Infractions aux lois des poids et mesures.
 Aliénation mentale.

.....Totaux.

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	PROVINCE OF NOVA SCOTIA.							
	ANNAPOLIS.				CAPE BRETON.			
	Sentence.				Sentence.			
	Con- vic- tions Total	Op- tion of a fine.	Com- mitted without option.	De- ferre &c.	Con- vic- tions Total	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
	Con- dam- na- tions.	Sur option	Empri- sonnés sans option,	Re- mise, etc.	Con- dam- na- tions.	Sur option	Empri- sonnés sans option.	Re- mise, etc.
Adulteration of Food.....								
Assaults.....	4	4			19	17	2	
Breach of peace.....					3	4		
Carrying fire-arms and unlawful weapons.....								
Contempt of Court.....								
Cruelty to animals.....								
Disturbing religious and like meetings.....								
Fishery Acts, offences against.....								
Gambling Acts.....								
Game Laws.....								
Larceny.....								
“ of dogs, birds, &c.....								
“ of timber, trees, fruits, &c.....								
Liquor License Acts, offences against.....								
Breach of Canada Temperance Act.....	3	3						
Selling liquor during prohibited hours.....								
“ to Indians.....								
“ without license.....								
Malicious injury to property.....								
Other damage to property.....								
Master's and Servant's Acts, offences against.....								
Medical Acts, offences against.....								
Militia Acts.....								
Miscellaneous minor offences.....								
Municipal Acts and By-laws, breaches of.....								
Exercising various callings without license.....								
Health By-laws, offences against.....								
Highways, offences relating to.....					1	1		
Neglecting to support family.....								
Pharmacy Acts, offences against.....								
Profanation of the Lord's Day.....								
Railway Acts, offences against.....								
Revenue Laws.....								
Seamen Acts.....								
Statute Labor, offences relating to.....								
Threats and abusive language.....					1	1		
Trespass.....								
Vagrancy.....					1	1		
Drunkenness.....					41	39	2	
Indecent exposure.....								
Insulting, obscene and profane language.....								
Keeping, frequenting bawdy houses and inmates thereof.....								
Loose, idle, disorderly.....					1	1		
Weights and Measures Acts, offences against.....								
Insanity.....								
Totals.....	7	7			68	64	4	

TABLEAU III. — CONdamnATIONS SOMMAIRES PAR MAGISTRATS DE POLICE ET AUTRES JUGES DE PAIX.							
PROVINCE DE LA NOUVELLE-ÉCOSSE.							
COLCHESTER.				CUMBERLAND.			
Con- vic- tions Total	Sentence.			Con- vic- tions Total	Sentence.		
	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.
				2	1	1	Falsifications de substances alimentaires.
				3	3		Voies de fait.
							Troubler la paix.
							Port d'armes illégal.
							Mépris de cour.
							Cruauté envers les animaux.
							Perturbation de réunions religieuses et autres.
							Infractions aux lois des pêcheries.
							“ défendant le jeu.
							“ de chasse.
							Larcin.
							Vol de chiens, oiseaux, etc.
							“ bois, arbres, fruits, etc.
13	13						Infractions aux lois des licences de boissons.
							Contraventions aux lois de tempérance du
							Canada.
							Vente de boissons durant les heures défendues.
							“ aux Sauvages.
							“ sans licence.
				3	3		Dommmages malicieux à la propriété.
							Autres dommmages à la propriété.
							Infractions aux lois concernant les maîtres et
							serveurs.
							Infractions aux lois concernant la médecine.
							“ de la milice.
							Divers petits délits.
				5	5		Contraventions aux lois municipales.
							Pratiquant divers états sans licence.
							Infractions aux lois snr l'hygiène publique.
							Délits ayant rapport aux chemins publics.
							Négligence de pourvoir aux besoins de la
							famille.
							Infract. aux lois concernant les pharmaciens.
							Profanation du dimanche.
							Infractions aux lois des chemins de fer.
							Délits contre le revenu de l'Etat.
							Infractions aux lois maritimes.
							Délits ayant rapport à la corvée.
							Menaces et langage injurieux.
							Empiètement.
							Vagabondage.
				78	77	1	Ivresse.
							Exposition indécente.
1	1						Langage insultant, obscène, profane.
							Tenant, habitant et fréquentant des maisons
							de désordre.
				5	4	1	Conduite déréglée.
							Infractions aux lois des poids et mesures.
							Aliénation mentale.
14	14			96	93	3	..... Totaux.

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	PROVINCE OF NOVA SCOTIA—Continued.							
	DIGBY.				GUYSBOROUGH.			
	Con- vic- tions Total Con- dam- na- tions.	Sentence.			Con- vic- tions Total Con- dam- na- tions.	Sentence.		
		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
		Sur- option	Empri- sonnés sans option.	Re- mise, etc.		Sur- option	Empri- sonnés sans option.	Re- mise, etc.
Adulteration of Food.....								
Assaults.....	4	4			2	2		
Breach of peace.....								
Carrying fire-arms and unlawful weapons.....								
Contempt of Court.....								
Cruelty to animals.....								
Disturbing religious and like meetings.....	3	3						
Fishery Acts, offences against.....								
Gambling Acts.....								
Game Laws.....								
Larceny.....								
“ of dogs, birds, &c.....								
“ of timber, trees, fruits, &c.....	3	3						
Liquor License Acts, offences against.....								
Breach of Canada Temperance Act.....	6	6						
Selling liquor during prohibited hours.....								
“ to Indians.....								
“ without license.....								
Malicious injury to property.....					3	3		
Other damage to property.....								
Master's and Servant's Acts, offences against.....								
Medical Acts, offences against.....								
Militia Acts.....								
Miscellaneous minor offences.....								
Municipal Acts and By-laws, breaches of.....								
Exercising various callings without license.....								
Health By-laws, offences against.....								
Highways, offences relating to.....								
Neglecting to support family.....								
Pharmacy Acts, offences against.....								
Profanation of the Lord's Day.....								
Railway Acts, offences against.....								
Revenue Laws.....								
Seamen Acts.....								
Statute Labor, offences relating to.....								
Threats and abusive language.....								
Trespass.....								
Vagrancy.....								
Drunkenness.....	17	17						
Indecent exposure.....	4	4						
Insulting, obscene and profane language.....								
Keeping, frequenting bawdy houses and inmates thereof.....								
Loose, idle, disorderly.....	2	2						
Weights and Measures Acts, offences against.....								
Insanity.....								
Totals.....	39	39			5	5		

TABLEAU III.—CONDAMNATIONS SOMMAIRES PAR MAGISTRATS DE POLICE ET AUTRES JUGES DE PAIX.							
PROVINCE DE LA NOUVELLE-ÉCOSSE— <i>Suite.</i>							
HALIFAX.				HANTS.			
Con- vic- tions	Sentence.			Con- vic- tions	Sentence.		
	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
Total	—	—	—	Total	—	—	—
Con- dam- na- tions.	Sur option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur option	Empri- sonnés sans option.	Re- mise, etc.
							OFFENSES.
96	80	6	10	4	4		Falsifications de substances alimentaires.
10	10						Voies de fait.
							Troubler la paix.
							Port d'armes illegal.
3	3						Mépris de cour.
2	2						Cruauté envers les animaux.
							Perturbation de réunions religieuses et autres.
							Infractions aux lois des pêcheries.
							“ défendant le jeu.
							“ de chasse.
							Larcin.
2	2						Vol de chiens, oiseaux, etc.
38	38						“ bois, arbres, fruits, etc.
							Infractions aux lois des licences de boissons.
							Contraventions aux lois de tempérance du
							Canada.
3	2	1					Vente de boissons durant les heures défendues.
							“ aux Sauvages.
3	3						“ sans licence.
							Dommages malicieux à la propriété.
							Autres dommages à la propriété.
							Infractions aux lois concernant les maîtres et
							serveurs.
							Infractions aux lois concernant la médecine.
							“ de la milice.
6	2	4					Divers petits délits.
28	28						Contraventions aux lois municipales.
1	1						Pratiquant divers états sans licence.
18	18						Infractions aux lois sur l'hygiène publique.
27	27						Délits ayant rapport aux chemins publics.
2	2						Négligence de pourvoir aux besoins de la
							famille.
							Infract. aux lois concernant les pharmaciens.
							Profanation du dimanche.
9	7	1	1				Infractions aux lois des chemins de fer.
49	1	27	21				Délits contre le revenu de l'Etat.
							Infractions aux lois maritimes.
26	17		9				Délits ayant rapport à la corvée.
							Menaces et langage injurieux.
							Empiètement.
69		65	4				Vagabondage.
366	337	22	7	19	19		Ivresse.
1	1						Exposition indécente.
3	2	1					Langage insultant, obscène, profane.
							Tenant, habitant et fréquentant des maisons
12	6	6					de désordre.
27	22	3	2	2	2		Conduite déréglée.
							Infractions aux lois des poids et mesures.
							Aliénation mentale.
801	611	136	54	25	25		Totaux.

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	PROVINCE OF NOVA SCOTIA— <i>Continued.</i>							
	INVERNESS.				KING'S.			
	Con- vic- tions Total	Sentence.			Con- vic- tions Total	Sentence.		
		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.
Adulteration of Food.....								
Assaults.....	1	1			3	3		
Breach of peace.....					1	1		
Carrying fire-arms and unlawful weapons.....								
Contempt of Court.....								
Cruelty to animals.....								
Disturbing religious and like meetings.....								
Fishery Acts, offences against.....								
Gambling Acts.....								
Game Laws.....								
Larceny.....								
“ of dogs, birds, &c.....								
“ of timber, trees, fruits, &c.....								
Liquor License Acts, offences against.....								
Breach of Canada Temperance Act.....					2	2		
Selling liquor during prohibited hours.....								
“ to Indians.....								
“ without license.....								
Malicious injury to property.....								
Other damage to property.....								
Master's and Servants Acts, offences against.....								
Medical Act, offences against.....								
Militia Acts.....								
Miscellaneous minor offences.....								
Municipal Acts and By-Laws, breaches of.....								
Exercising various callings without license.....								
Health By-laws, offences against.....								
Highways, offences relating to.....					1	1		
Neglecting to support family.....								
Pharmacy Acts, offences against.....								
Profanation of the Lord's Day.....								
Railway Acts, offences against.....								
Revenue Laws.....								
Seamen Acts.....								
Statute Labor, offences relating to.....								
Threats and abusive language.....								
Trespass.....								
Vagrancy.....								
Drunkenness.....	3	3			32	22	1	9
Indecent exposure.....								
Insulting, obscene and profane language.....								
Keeping, frequenting bawdy houses and inmates thereof.....								
Loose, idle, disorderly.....								
Weights and Measures Acts, offences against.....								
Insanity.....								
Totals.....	4	4			39	29	1	9

TABLEAU III.—CONDAMNATIONS SOMMAIRES PAR MAGISTRATS DE POLICE ET AUTRES JUGES DE PAIX.

PROVINCE DE LA NOUVELLE-ÉCOSSE— <i>Suite.</i>								OFFENSES.
LUNENBURG.				PICTOU.				
Con- vic- tions	Sentence.			Con- vic- tions	Sentence.			
	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	
Total	—	—	—	Total	—	—	—	
Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	
16	13	1	2	20	17	2	1	Falsifications de substances alimentaires.
				12	10		2	Voies de fait.
								Troubler la paix.
1	1							Port d'armes illégal.
				4	4			Mépris de cour.
6	6			3	3			Cruauté envers les animaux.
								Perturbation de réunions religieuses et autres.
								Infractions aux lois des pêcheries.
								“ défendant le jeu.
2	2			4	4			“ de chasse.
								Larcin.
								Vol de chiens, oiseaux, etc.
4	4							“ bois, arbres, fruits, etc.
								Infractions aux lois des licences de boissons.
								Contraventions aux lois de tempérance du
								Canada.
								Vente de boissons durant les heures défendues
24	23	1						“ aux Sauvages
4	4							“ sans licence.
				5	3	1	1	Domages malicieux à la propriété.
								Autres dommages à la propriété.
								Infractions aux lois concernant les maîtres et
								serveurs.
								Infractions aux lois concernant la médecine.
								“ de la milice.
				2	2			Divers petits délits.
								Contraventions aux lois municipales.
								Pratiquant divers états sans licence.
1	1							Infractions aux lois sur l'hygiène publique.
								Délits ayant rapport aux chemins publics.
								Négligence de pourvoir aux besoins de la
								famille.
								Infrac. aux lois concernant les pharmaciens.
								Profanation du dimanche.
								Infractions aux lois des chemins de fer.
1			1	4	4			Délits contre le revenu de l'Etat.
								Infractions aux lois maritimes.
2			2					Délits ayant rapport à la corvée.
								Menaces et langage injurieux.
1		1						Empiètement.
5	3	2		55	48	2	5	Vagabondage.
				1		1		Ivresse.
1	1							Exposition indécente.
								Langage insultant, obscène, profane.
								Tenant, habitant et fréquentant des maisons
1	1			3	3			de désordre.
								Conduite déréglée.
								Infractions aux lois des poids et mesures.
								Aliénation mentale.
69	59	5	5	113	98	6	9	.....Totaux.

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	PROVINCE OF NOVA SCOTIA— <i>Concluded.</i>							
	PROVINCE DE LA NOUVELLE-ECOSSE— <i>Fin.</i>							
	SHELBURNE.				YARMOUTH.			
	Sentence.				Sentence.			
	Con- vic- tions Total	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	Con- vic- tions Total	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.
Adulteration of Food.....								
Assaults.....	1	1			13	13		
Breach of peace.....								
Carrying fire-arms and unlawful weapons.....								
Contempt of Court.....								
Cruelty to animals.....								
Disturbing religious and like meetings..								
Fishery Acts, offences against.....								
Gambling Acts.....								
Game Laws.....								
Larceny.....								
“ of dogs, birds, &c.....								
“ of timber, trees, fruits, &c.....								
Liquor License Acts, offences against.....					12	7	5	
Breach of Canada Temperance Act.....	2	2						
Selling liquor during prohibited hours.....								
“ to Indians.....								
“ without license.....					11	8	3	
Malicious injury to property.....								
Other damage to property.....					2		2	
Master's and Servant's Acts, offences against.....								
Medical Acts, offences against.....								
Militia Acts.....								
Miscellaneous minor offences.....								
Municipal Acts and By-laws, breaches of.....					2	2		
Exercising various callings without license.....								
Health By-laws, offences against.....								
Highways, offences relating to.....					5	5		
Neglecting to support family.....								
Pharmacy Acts, offences against.....								
Profanation of the Lord's Day.....								
Railway Acts, offences against.....								
Revenue Laws.....								
Seamen Acts.....					1		1	
Statute Labor, offences relating to.....								
Threats and abusive language.....								
Trespass.....								
Vagrancy.....								
Drunkenness.....	1	1			18	17	1	
Indecent exposure.....								
Insulting, obscene and profane language.....								
Keeping, frequenting bawdy houses and minates thereof.....								
Loose, idle, disorderly.....					6	4	2	
Weights and Measures Acts, offences against.....								
Insanity.....								
Totals.....	4	4			70	56	14	

TABLEAU III.—CONDAMNATIONS SOMMAIRES PAR MAGISTRATS DE POLICE ET AUTRES JUGES DE PAIX.								
PROVINCE OF NEW BRUNSWICK. — PROVINCE DU NOUVEAU-BRUNSWICK.								
CARLETON.				CHARLOTTE.				
Con- vic- tions Total Con- dam- na- tions.	Sentence.			Con- vic- tions Total Con- dam- na- tions.	Sentence.			OFFENSES.
	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	
	Sur- option	Empri- sonnés sans option.	Re- mise, etc.		Sur- option	Empri- sonnés sans option.	Re- mise, etc.	
6	6			4	3	1	Falsifications de substances alimentaires.	
				5	5		Voies de fait.	
1	1			1	1		Troubler la paix.	
							Port d'armes illégal.	
1	1			1	1		Mépris de cour.	
							Cruauté envers les animaux.	
							Perturbation de réunions religieuses et autres.	
							Infractions aux lois des pêcheries.	
							“ défendant le jeu.	
							“ de chasse.	
							Larcin.	
							Vol de chiens, oiseaux, etc.	
							“ bois, arbres, fruits, etc.	
16	16			3	2	1	Infractions aux lois des licences de boissons.	
							Contraventions aux lois ds tempérance du Canada.	
							Vente de boissons durant les heures défendues.	
				34	31	3	“ aux Sauvages.	
							“ sans licence.	
							Dommages malicieux à la propriété.	
							Autres dommages à la propriété.	
							Infractions aux lois concernant les maîtres et serviteurs.	
							Infractions aux lois concernant la médecine.	
							“ de la milice.	
4	4						Divers petits délits.	
3	3						Contraventions aux lois municipales.	
				1	1		Pratiquant divers états sans licence.	
				3	3		Infractions aux lois sur l'hygiène publique.	
							Délits ayant rapport aux chemins publics.	
							Négligence de pourvoir aux besoins de la famille.	
1	1						Infrac. aux lois concernant les pharmaciens.	
							Profanation du dimanche.	
							Infractions aux lois des chemins de fer.	
							Délits contre le revenu de l'Etat.	
							Infractions aux lois maritime.	
							Délits ayant rapport à la corvée.	
							Menaces et langage injurieux.	
							Empiètement.	
							Vagabondage.	
45	44	1		108	108		Ivresse.	
							Exposition indécente.	
				1	1		Langage insultant, obscène, profane.	
							Tenant, habitant et fréquentant des maisons de désordre	
							Conduite déréglée.	
							Infractions aux lois des poids et mesures.	
							Aliénation mentale.	
77	76	1		161	156	5	Totaux.	

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	PROVINCE OF NEW BRUNSWICK—Continued.							
	GLOUCESTER.				KENT.			
	Sentence.				Sentence.			
	Con- vic- tions Total	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	Con- vic- tions Total	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.
Adulteration of Food.....								
Assaults.....	13	12	1		3	3		
Breach of peace.....								
Carrying fire-arms and unlawful weapons.....								
Contempt of Court.....								
Cruelty animals.....								
Disturbing religious and like meetings.....								
Fishery Acts, offences against.....								
Gambling Acts.....								
Game Laws.....								
Larceny.....								
“ of dogs, birds, &c.....								
“ of timber, trees, fruits, &c.....								
Liquor License Acts, offences against.....								
Breach of Canada Temperance Act.....								
Selling liquor during prohibited hours.....								
“ to Indians.....								
“ without license.....								
Malicious injury to property.....	2	2						
Other damage to property.....								
Master's and Servant's Acts, offences against.....								
Medical Acts, offences against.....								
Militia Acts.....								
Miscellaneous minor offences.....								
Municipal Acts and By-laws, breaches of.....								
Exercising various callings without license.....								
Health By-laws, offences against.....								
Highways, offences relating to.....								
Neglecting to support family.....								
Pharmacy, Acts, offences against.....								
Profanation of the Lord's Day.....								
Railway Acts, offences against.....								
Revenue Laws.....								
Seamen Acts.....								
Statute Labor, offences relating to.....								
Threats and abusive language.....								
Trespass.....								
Vagrancy.....								
Drunkenness.....	1		1					
Indecent exposure.....								
Insulting, obscene and profane language.....	6	6						
Keeping, frequenting bawdy houses and inmates thereof.....								
Loose, idle, disorderly.....								
Weights and Measures Acts, offences against.....								
Insanity.....								
Totals.....	22	20	2		3	3		

TABLEAU III.—CONDAMNATIONS SOMMAIRES PAR MAGISTRATS DE POLICE
ET AUTRES JUGES DE PAIX.

PROVINCE DU NOUVEAU-BRUNSWICK—Suite.							
King's.				NORTHUMBERLAND.			
Con- vic- tions	Sentence.			Con- vic- tions	Sentence.		
	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
Total	—	—	—	Total	—	—	—
Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.
2	2			4	2	2	Falsifications de substances alimentaires.
							Voies de fait.
				1		1	Troubler la paix.
							Port d'armes illégal.
							Mépris de cour.
				1	1		Cruauté envers les animaux.
							Perturbation de réunions religieuses et autres.
							Infractions aux lois des pêcheries.
							“ défendant le jeu.
							“ de chasse.
				1		1	Larcin.
							Vol de chiens, oiseaux, etc.
2	2						“ bois, arbres, fruits, etc.
							Infractions aux lois des licences de boissons.
6	6			17	15	2	Contraventions aux lois de tempérance du Canada.
							Vente de boissons durant les heures défendues
							“ aux Sauvages.
				7	7		“ sans licence.
							Dommages malicieux à la propriété.
							Autres dommages à la propriété.
							Infractions aux lois concernant les maîtres et serviteurs.
							Infractions aux lois concernant la médecine.
				2	2		“ de la milice.
							Divers petits délits.
							Contraventions aux lois municipales.
							Pratiquant divers états sans licence.
				2	2		Infractions aux lois sur l'hygiène publique.
							Délits ayant rapport aux chemins publics.
							Négligence de pourvoir aux besoins de la famille.
							Infrac. aux lois concernant les pharmaciens.
							Profanation du dimanche.
							Infractions aux lois des chemins de fer.
				1		1	Délits contre le revenu de l'Etat.
							Infractions aux lois maritimes.
				5	5		Délits ayant rapport à la corvée.
							Menaces et langage injurieux.
							Empiètement.
				3		3	Vagabondage.
				84	74	10	Ivresse.
							Exposition indécente.
							Langage insultant, obscène, profane.
							Tenant, habitant et fréquentant des maisons de désordre.
							Conduite déréglée
							Infractions aux lois des poids et mesures.
							Aliénation mentale.
10	10			128	108	20	Totaux.

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	PROVINCE OF NEW BRUNSWICK—Continued.							
	ST. JOHN.				WESTMORELAND.			
	Sentence.				Sentence.			
	Con- vic- tions	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	Con- vic- tions	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
	Total	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Total	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.
Adulteration of Food.....								
Assaults.....	130		127	1	2	27	27	
Breach of peace.....	64		64					
Carrying fire-arms and unlawful weapons.....								
Contempt of Court.....								
Cruelty to animals.....	3		3		1	1		
Disturbing religious and like meetings.....	1		1					
Fishery Acts, offences against.....								
Gambling Acts.....								
Game Laws.....								
Larceny.....	1		1					
“ of dogs, birds, &c.....								
“ of timber, trees, fruits, &c.....								
Liquor License Acts, offences against.....	10		10					
Breach of Canada Temperance Act.....					43	43		
Selling liquor during prohibited hours.....	24		24					
“ to Indians.....	1		1					
“ without license.....	59		59		7	7		
Malicious injury to property.....								
Other damage to property.....	15		15		1	1		
Master's and Servant's Acts, offences against.....								
Medical Acts, offences against.....								
Militia Acts.....								
Miscellaneous minor offences.....								
Municipal Acts and By-laws, breaches of.....	32		27	5	8	7		1
Exercising various callings without license.....	2		2					
Health By-laws, offences against.....	2		2					
Highways, offences relating to.....	2		1	1	1	1		
Neglecting to support family.....								
Pharmacy Acts, offences against.....								
Profanation of the Lord's Day.....	8		8					
Railway Acts, offences against.....	26		25	1				
Revenue Laws.....								
Seamen Acts.....	18		7	1	10			
Statute Labor, offences relating to.....								
Threats and abusive language.....	27		26	1	6	6		
Trespass.....								
Vagrancy.....	9		6	1	2	6	3	2
Drunkenness.....	1,115		1,113	2	190	143	47	
Indecent exposure.....								
Insulting, obscene and profane language.....	5		5		1	1		
Keeping, frequenting bawdy houses and inmates thereof.....	9		9					
Loose, idle, disorderly.....					2	1		1
Weights and Measures Acts, offences against.....								
Insanity.....								
Totals.....	1,563		1,536	3	24	293	241	49

PROVINCE DU NOUVEAU-BRUNSWICK—*Fin.*

YORK.				Totals of New Brunswick.				OFFENSES.
Sentence.				Sentence.				
Con- vic- tions	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	Con- vic- tions	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	
Total	—	—	—	Total	—	—	—	
Con- dam- na- tions.	Sur option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur option	Empri- sonnés sans option.	Re- mise, etc.	
36	36			225	218	5	2	Falsifications de substances alimentaires.
2	2			71	71			Voies de fait.
				3	2	1		Troubler la paix.
								Port d'armes illégal.
2	2			8	8			Mépris de cour.
7	7			9	9			Cruauté envers les animaux.
								Perturbation de réunions religieuses et autres.
								Infractions aux lois des pêcheries.
								“ défendant le jeu.
								“ de chasse.
				2	1	1		Larcin.
								Vol de chiens, oiseaux, etc.
7	7			9	9			“ bois, arbres, fruits, etc.
				10	10			Infractions aux lois des licences de boissons.
25	25			110	107	3		Contraventions aux lois de tempérance du Canada.
				24	24			Vente de boissons durant les heures défendues.
				1	1			“ aux Sauvages.
				100	97	3		“ sans licence.
5	5			14	14			Dommages malicieux à la propriété.
				16	16			Autres dommages à la propriété.
								Infractions aux lois concernant les maîtres et serviteurs.
								Infractions aux lois concernant la médecine.
								“ de la milice.
1	1			7	7			Divers petits délits.
12	12			55	49		6	Contraventions aux lois municipales.
				2	2			Pratiquant divers états sans licence.
2	2			5	5			Infractions aux lois sur l'hygiène publique.
				8	7		1	Délits ayant rapport aux chemins publics.
								Négligence de pourvoir aux besoins de la famille.
								Infractions aux lois concernant les pharmaciens.
				9	9			Profanation du dimanche.
				26	25		1	Infractions aux lois des chemins de fer.
								Délits contre le revenu de l'Etat.
				19	7	2	10	Infractions aux lois maritimes.
								Délits ayant rapport à la corvée.
2	2			40	39		1	Menaces et langage injurieux.
								Empiètement.
1		1		19	9	7	3	Vagabondage.
85	84	1		1,628	1,566	60	2	Ivresse.
								Exposition indécente.
				13	13			Langage insultant, obscène, profane.
								Tenant, habitant et fréquentant des maisons de désordre.
				9	9			Conduite déréglée.
				2	1		1	Infractions aux lois des poids et mesures.
								Aliénation mentale.
187	185	2		2,444	2,335	82	27	Totaux.

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

PROVINCE OF QUEBEC.								
OFFENCES.	ARTHABASKA.				BEDFORD.			
	Con- vic- tions Total Con- dam- na- tion .	Sentence.			Con- vic- tions Total Con- dam- na- tions.	Sentence.		
		Op- tion of a fine. — Sur option	Com- mitted without option. — Empri- sonnés sans option.	De- ferred &c. — Re- mise, etc.		Op- tion of a fine. — Sur option	Com- mitted without option. — Empri- sonnés sans option.	De- ferred &c. — Re- mise, etc.
Adulteration of Food.					2	2		
Assaults.....	6	6			11	11		
Breach of peace.....								
Carrying fire-arms and unlawful weapons.								
Contempt of Court.....								
Cruelty to animals								
Disturbing religious and like meetings.....					2	2		
Fishery Acts, offences against.....								
Gambling Acts ".....								
Game Laws ".....								
Larceny.....								
" of dogs, birds, &c.....								
" of timber, trees, fruits, &c.....	1	1						
Liquor License Acts, offences against.....	2	2						
Breach of Canada Temperance Act.								
Selling liquor during prohibited hours....	1	1						
" to Indians.....								
" without license.....	29	29						
Malicious injury to property.....								
Other damage to property.....					1	1		
Master's and Servant's Acts, offences against..					2	2		
Medical Act, offences against.....								
Militia Acts ".....								
Miscellaneous minor offences.....								
Municipal Acts and By-Laws, breaches of..								
Exercising various callings without license..								
Health By-laws, offences against.....								
Highways, offences relating to.....								
Neglecting to support family.....								
Pharmacy Acts, offences against.....								
Profanation of the Lord's Day.....								
Railway Acts, offences against.....								
Revenue Laws.....								
Seamen Acts ".....								
Statute Labor, offences relating to.....								
Threats and abusive language.....					4	4		
Trespass.....								
Vagrancy.....								
Drunkenness.....								
Indecent exposure.....								
Insulting, obscene and profane language....								
Keeping, frequenting bawdy houses and inmates thereof.....								
Loose, idle, disorderly.....								
Weights and Measures Acts, offences against..								
Insanity.....								
Totals	39	39			22	22		

TABLEAU III.—CONDAMNATIONS SOMMAIRES PAR MAGISTRATS DE POLICE ET AUTRES JUGES DE PAIX.

PROVINCE DE QUÉBEC.							
GASPÉ.				JOLIETTE.			
Sentence.				Sentence.			
Con- vic- tions	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	Con- vic- tions	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
Total	—	—	—	Total	—	—	—
Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.
							</

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	PROVINCE OF QUEBEC—Continued.							
	KAMOURASKA.				MONTMAGNY.			
	Sentence.				Sentence.			
	Con- vic- tions	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	Con- vic- tions	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
	Total	Con- dam- na- tions.	Sur option	Emprisonnés sans option.	Total	Con- dam- na- tions.	Sur option	Emprisonnés sans option.
Adulteration of Food								
Assaults	1		1		2		2	
Breach of peace								
Carrying fire-arms and unlawful weapons								
Contempt of Court								
Cruelty to animals								
Disturbing religious and like-meetings								
Fishery Acts, offences against								
Gambling Acts								
Game Laws								
Larceny								
“ of dogs, birds, &c.								
“ of timber, trees, fruits, &c.								
Liquor License Acts, offences against								
Breach of Canada Temperance Act								
Selling liquor during prohibited hours								
“ to Indians								
“ without license								
Malicious injury to property								
Other damage to property								
Master's and Servant's Acts, offences against								
Medical Acts, offences against								
Militia Acts								
Miscellaneous minor offences								
Municipal Acts and By-laws, breaches of								
Exercising various callings without license								
Health By-laws, offences against								
Highways, offences relating to								
Neglecting to support family								
Pharmacy Acts, offences against								
Profanation of the Lord's Day								
Railway Acts, offences against								
Revenue Laws								
Seamen Acts								
Statute Labor, offences relating to								
Threats and abusive language								
Trespass								
Vagrancy					1		1	
Drunkenness								
Indecent exposure								
Insulting, obscene and profane language								
Keeping, frequenting bawdy houses and inmates thereof								
Loose, idle, disorderly								
Weights and Measures Acts, offences against								
Insanity								
Totals	1		1		3		3	

TABLEAU III.—CONDAMNATIONS SOMMAIRES PAR MAGISTRATS DE POLICE
ET AUTRES JUGES DE PAIX.

PROVINCE DE QUÉBEC— <i>Suite.</i>								
MONTREAL.				OTTAWA.				
Con- vic- tions	Sentence.			Con- vic- tions	Sentence.			OFFENSES.
	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	
Total	—	—	—	Total	—	—	—	
Con- dam- na- tions.	Sur option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur option	Empri- sonnés sans option.	Re- mise, etc.	
693	547	66	80	17	17				Falsifications de substances alimentaires.
110	43	23	44	11	11			Voies de fait.
20	6	1	13					Troubler la paix.
								Port d'armes illégal.
36	30		6					Mépris de cour.
8	5		3					Cruauté envers les animaux.
4	4							Perturbation de réunions religieuses et autres.
4	4							Infractions aux lois des pêcheries.
4	4							“ défendant le jeu.
								“ de chasse.
								Larcin.
8	8							Vol de chiens, oiseaux, etc.
57	57							“ bois, arbres, fruits, etc.
								Infractions aux lois des licences de boissons.
								Contraventions aux lois de tempérance du Canada.
73	73							Vente de boissons durant les heures défendues.
3	3							“ aux Sauvages.
95	95							“ sans licence.
3	3							Dommmages malicieux à la propriété.
213	199	4	10	2	2			Autres dommmages à la propriété.
				1	1			Infractions aux lois concernant les maîtres et serveurs.
								Infractions aux lois concernant la médecine.
								“ de la milice.
1	1							Divers petits délits.
17	8		9	8	8			Contraventions aux lois municipales.
6	6							Pratiquant divers états sans licence.
1	1							Infractions aux lois sur l'hygiène publique.
								Délits ayant rapport aux chemins publics.
								Négligence de pourvoir aux besoins de la famille.
2	2							Infraction aux lois concernant les pharmaciens.
								Profanation du dimanche.
2	2							Infractions aux lois des chemins de fer.
2	2							Délits contre le revenu de l'Etat.
32	1	31						Infractions aux lois maritimes.
								Délits ayant rapport à la corvée.
11	7		4	4	4			Menaces et langage injurieux.
								Empiètement.
1,872	1,318	239	315	1	1			Vagabondage.
3,624	2,763	183	678	58	58			Ivresse.
						2	2	Exposition indécente.
3	3					4	4	Langage insultant, obscène, profane.
								Tenant, habitant et fréquentant des maisons de désordre.
367	249	59	59	13	13			Conduite déréglée.
55	28	25	2	9	9			Infractions aux lois des poids et mesures.
								Aliénation mentale.
7,326	5,472	631	1,223	130	130			.....Totaux.

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	PROVINCE OF QUEBEC—Continued.							
	QUEBEC.				RICHELIEU.			
	Con- vic- tions	Sentence.			Con- vic- tions	Sentence.		
		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
Total	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Total	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.
Adulteration of Food.....								
Assaults.....	110	97	2	11	13	12	1	
Breach of peace.....	109	109			29	29		
Carrying fire-arms and unlawful weapons.....	1	1						
Contempt of Court.....	1	1						
Cruelty to animals.....	3	3						
Disturbing religious and like meetings.....	1	1						
Fishery Acts, offences against.....	1	1			2	2		
Gambling Acts.....								
Game Laws.....								
Larceny.....								
“ of dogs, birds, &c.....								
“ of timber, trees, fruits, &c.....								
Liquor License Acts, offences against.....	7	7			2	2		
Breach of Canada Temperance Act.....								
Selling liquor during prohibited hours.....	21	21			10	10		
“ to Indians.....								
“ without license.....	52	52			6	6		
Malicious injury to property.....					2	2		
Other damage to property.....	10	10			6	6		
Master's and Servants Acts, offences against.....	5	5						
Medical Act, offences against.....								
Militia Acts.....								
Miscellaneous minor offences.....					2	2		
Municipal Acts and By-Laws, breaches of.....	287	287			1	1		
Exercising various callings without license.....	84	84			1	1		
Health By-laws, offences against.....	14	14						
Highways, offences relating to.....	18	18						
Neglecting to support family.....	1	1						
Pharmacy Acts, offences against.....								
Profanation of the Lord's Day.....								
Railway Acts, offences against.....								
Revenue Laws.....					1	1		
Seamen Acts.....	7		5	2	1	1		
Statute Labor, offences relating to.....								
Threats and abusive language.....	44	30	1	13				
Trespass.....	1	1						
Vagrancy.....	3	3			38	38		
Drunkenness.....	449	449						
Indecent exposure.....	4	4			1	1		
Insulting, obscene and profane language.....	75	75			2	2		
Keeping, frequenting bawdy houses and inmates thereof.....	6	6			12	4	8	
Loose, idle, disorderly.....	158	127	30	1				
Weights and Measures Acts, offences against.....	3	3						
Insanity.....								
Totals.....	1,475	1,410	38	27	129	120	9	

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	PROVINCE OF QUEREC— <i>Concluded.</i>							
	PROVINCE DE QUÉBEC— <i>Fin.</i>							
	ST. HYACINTHE.				THREE RIVERS. — TROIS-RIVIÈRES.			
	Sentence.				Sentence.			
	Con- vic- tions Total	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	Con- vic- tions Total	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
	Con- dam- na- tion .	Sur option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur option	Empri- sonnés sans option.	Re- mise, etc.
Adulteration of Food.								
Assaults.	2	1	1		5	5		
Breach of peace.	1	1			17	1	16	
Carrying fire-arms and unlawful weapons.								
Contempt of Court.								
Cruelty to animals.								
Disturbing religious and like meetings.								
Fishery Acts, offences against.								
Gambling Acts.								
Game Laws.								
Larceny.								
“ of dogs, birds, &c.								
“ of timber, trees, fruits, &c.								
Liquor License Acts, offences against.					3	3		
Breach of Canada Temperance Act.								
Selling liquor during prohibited hours.								
“ to Indians.								
“ without license.					12	12		
Malicious injury to property.								
Other damage to property.								
Master's and Servant's Acts, offences against.								
Medical Act, offences against.								
Militia Acts.								
Miscellaneous minor offences.								
Municipal Acts and By-Laws, breaches of.	1	1						
Exercising various callings without license.					1	1		
Health By-laws, offences against.					1	1		
Highways, offences relating to.	4	4						
Neglecting to support family.	1	1						
Pharmacy Acts, offences against.								
Profanation of the Lord's Day.								
Railway Acts, offences against.								
Revenue Laws.								
Seamen Acts.								
Statute Labor, offences relating to.								
Threats and abusive language.								
Trespass.								
Vagrancy.	3	1	2					
Drunkenness.	33	30	3		16	15		1
Indecent exposure.								
Insulting, obscene and profane language.								
Keeping, frequenting bawdy houses and inmates thereof.	13	13						
Loose, idle, disorderly.					1	1		
Weights and Measures Acts, offences against.								
Insanity.					10			10
Totals.	58	52	6		66	39	16	11

TABLEAU III. — CONDAMNATIONS SOMMAIRES PAR MAGISTRATS DE POLICE ET AUTRES JUGES DE PAIX.

PROVINCE OF ONTARIO.							
PROVINCE D'ONTARIO.							
ALGOMA.				BRANT.			
Sentence.				Sentence.			
Con- vic- tions	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	Con- vic- tions	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
Total	Sur- option	Emprisonnés sans option.	Re- mise, etc.	Total	Sur- option	Emprisonnés sans option.	Re- mise, etc.
Con- dam- na- tions.				Con- dam- na- tions.			
34	33	1		49	48	1	
5	5			4	4		
1	1			3	3		
				1	1		
2	2			5	5		
				2	2		
3	3						
1	1						
				4	4		
1	1						
3	3			18	16	2	
8	8			4	4		
6	6						
6	6			2	2		
2	2			14	14		
7	7			4	4		
				12	12		
8	8			111	111		
2	2						
				15	15		
3	3			15	15		

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	PROVINCE OF ONTARIO—Continued.							
	BRUCE.				CARLETON.			
	Sentence.				Sentence.			
	Con- vic- tions Total	Op- tion of a fine.	Com- mitted without option	De- ferre &c.	Con- vic- tions Total	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
	Con- dam- na- tions.	Sur option	Emprison- nés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur option	Emprison- nés sans option.	Re- mise, etc.
Adulteration of Food.....	24	24						
Assaults.....	64	63	1		86	86		
Breach of peace.....	5	5			162	162		
Carrying fire-arms and unlawful weapons.....					1	1		
Contempt of Court.....					5	5		
Cruelty to animals.....					1	1		
Disturbing religious and like meetings.....	6	6						
Fishery Acts, offences against.....	1	1						
Gambling Acts.....	3	3						
Game Laws.....	1	1						
Larceny.....	7	5		2				
“ of dogs, birds, &c.....	6	6						
“ of timber, trees, fruits, &c.....	1	1			2		2	
Liquor License Acts, offences against.....	39	39			26	26		
Breach of Canada Temperance Act.....								
Selling liquor during prohibited hours.....	9	9			42	42		
“ to Indians.....	6	6						
“ without license.....	5	5			25	25		
Malicious injury to property.....								
Other damage to property.....	1	1			23	23		
Master's and Servant's Acts, offences against.....	8	8			2	2		
Medical Acts, offences against.....	1	1			3	3		
Militia Acts.....								
Miscellaneous minor offences.....								
Municipal Acts and By-laws, breaches of.....	8	7	1		99	99		
Exercising various callings without license.....	3	3			7	7		
Health By-laws, offences against.....					4	4		
Highways, offences relating to.....	4	4			43	43		
Neglecting to support family.....	1	1						
Pharmacy Acts, offences against.....								
Profanation of the Lord's Day.....	3	3			4	4		
Railway Acts, offences against.....	2	2						
Revenue Laws.....								
Seamen Acts.....								
Statute Labor, offences relating to.....								
Threats and abusive language.....	2	1		1	10	10		
Trespass.....	6	6			2	2		
Vagrancy.....	16	8	6	2	8	1	7	
Drunkemess.....	40	40			294	294		
Indecent exposure.....	1	1			5	5		
Insulting, obscene and profane language.....	24	24			41	41		
Keeping, frequenting bawdy houses and inmates thereof.....								
Loose, idle, disorderly.....	75	74	1		87	87		
Weights and Measures Acts, offences against.....					8	8		
Insanity.....	2			2	2			2
Totals.....	374	358	9	7	992	981	9	2

TABLEAU III.—CONDAMNATIONS SOMMAIRES PAR MAGISTRATS DE POLICE ET AUTRES JUGES DE PAIX.

PROVINCE D'ONTARIO— <i>Suite.</i>								
DUFFERIN.				ELGIN.				
Con- vic- tions	Sentence.			Con- vic- tions	Sentence.			OFFENSES.
	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	
Total	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Total	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	
Con- dam- na- tions.				Con- dam- na- tions.				
22	22			3	3				Falsifications de substances alimentaires.
				23	22		1	Voies de fait.
				2	2			Troubler la paix.
								Port d'armes illégal.
								Mépris de cour.
3	3			2	2			Cruauté envers les animaux.
1	1							Perturbation de réunions religieuses et autres.
								Infractions aux lois des pêcheries.
								“ défendant le jeu.
								“ de chasse.
				1	1			Larcin.
								Vol de chiens, oiseaux, etc.
5	5			21	21			“ bois, arbres, fruits, etc.
								Infractions aux lois des licences de boissons.
1	1			1	1			Contraventions aux lois de tempérance du
								Canada.
1	1			3		2	1	Vente de boissons durant les heures défendues
				1	1			“ aux Sauvages
				10	10			“ sans licence.
2	2			2	2			Dommages malicieux à la propriété.
								Autres dommages à la propriété.
2	2			2	2			Infractions aux lois concernant les maîtres et
								serviteurs.
2	2			2	2			Infractions aux lois concernant la médecine.
								“ de la milice.
17	17			1	1			Divers petits délits.
3	3			35	35			Contraventions aux lois municipales.
								Pratiquant divers états sans licence.
2	2							Infractions aux lois sur l'hygiène publique.
				5	5			Délits ayant rapport aux chemins publics.
								Négligence de pourvoir aux besoins de la
								famille.
								Infrac. aux lois concernant les pharmaciens.
								Profanation du dimanche.
				10	9	1		Infractions aux lois des chemins de fer.
								Délits contre le revenu de l'Etat.
								Infractions aux lois maritimes.
3	1		2	1			1	Délits ayant rapport à la corvée.
7	7			6	5		1	Menaces et langage injurieux.
37	1	35	1	8	8			Empiètement.
				2		2		Vagabondage.
				73	60	11	2	Ivresse.
5	5							Exposition indécente.
4	4			1	1			Langage insultant, obscène, profane.
								Tenant, habitant et fréquentant des maisons
				10	3	7		de désordre.
13	13			21	13	2	6	Conduite déréglée.
								Infractions aux lois des poids et mesures.
2			2	1			1	Aliénation mentale.
130	90	35	5	245	207	25	13	Totaux.

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	PROVINCE OF ONTARIO—Continued.							
	ESSEX.				FRONTENAC.			
	Sentence.				Sentence.			
	Con- vic- tions Total	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	Con- vic- tions Total	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
	Con- dam- na- tions.	Sur option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur option	Empri- sonnés sans option.	Re- mise, etc.
Adulteration of Food.....					16	16		
Assaults.....	67	67			28	23	4	1
Breach of peace					7	6	1	
Carrying fire-arms and unlawful weapons.....	4	2		2	1	1		
Contempt of Court.....								
Cruelty to animals.....	1	1			1	1		
Disturbing religious and like meetings.....	9	9			2	2		
Fishery Acts, offences against.....								
Gambling Acts.....					2	2		
Game Laws.....	1	1						
Larceny.....	1	1			3	3		
“ of dogs, birds, &c.....								
“ of timber, trees, fruits, &c.....	2	2						
Liquor License Acts, offences against.....	16	16			14	14		
Breach of Canada Temperance Act.....								
Selling liquor during prohibited hours.....	1	1						
“ to Indians.....								
“ without license.....	7	7			1	1		
Malicious injury to property.....	8	8			1	1		
Other damage to property.....	3	3			4	4		
Master and Servant's Acts, offences against.....	4	4			1	1		
Medical Acts, offences against.....	1	1						
Militia Acts.....	2	2						
Miscellaneous minor offences.....					1	1		
Municipal Acts and By-laws, breaches of.....	9	9			7	7		
Exercising various callings without license.....					1	1		
Health By-laws, offences against.....	2	2						
Highways, offences relating to.....	24	24			8	8		
Neglecting to support family.....								
Pharmacy Acts, offences against.....								
Profanation of the Lord's Day.....	2	2						
Railway Acts, offences against.....	23	23						
Revenue Laws.....								
Seamen Acts.....								
Statute Labor, offences relating to.....					1	1		
Threats and abusive language.....	3	3			11	7		4
Trespass.....	5	5			4	4		
Vagrancy.....	7		7		34	24	10	
Drunkenness.....	157	156	1		239	229	10	
Indecent exposure.....	2		2		1		1	
Insulting, obscene and profane language.....	12	12			8	8		
Keeping, frequenting bawdy houses and inmates thereof.....	8	5	3		1	1		
Loose, idle, disorderly.....	8	8			14	13	1	
Weights and Measures Acts, offences against.....	1	1						
Insanity.....					1			1
Totals.....	390	375	13	2	412	379	27	6

TABLEAU III. — CONDAMNATIONS SOMMAIRES PAR MAGISTRATS DE POLICE ET AUTRES JUGES DE PAIX.

PROVINCE D'ONTARIO— <i>Suite.</i>							
GREY.				HALDIMAND.			
Sentence.				Sentence.			
Con- vic- tions	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	Con- vic- tions	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
Total				Total			
Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.
61	60	1		3	3		
14	14			19	19		
1	1			1	1		
8	8			1	1		
8	8						
				4	4		
1	1						
1	1						
28	28						
13	13			3	3		
3	3						
2	1	1		1	1		
9	9			2	2		
4	4			3	3		
1	1						
1	1						
5	5						
2	2						
				1	1		
1	1						
2	2			1	1		
				3		3	
		1					
1	1						
8	8			1	1		
3	3			6	6		
43		43		87	15	72	
22	22			23	20	3	
	3			1	1		
24	24			3	3		
5	2	3					
8	8			1	1		
				1			
							1
283	234	49		165	86	78	1
..... Totaux.							

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	PROVINCE OF ONTARIO—Continued.							
	HALTON.				HASTINGS.			
	Con- vic- tions Total Con- dam- na- tions.	Sentence.			Con- vic- tions Total Con- dam- na- tions.	Sentence.		
		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.			
Adulteration of Food.....					14	14		
Assaults.....	23	23			72	65	7	
Breach of peace.....	3	2		1	10	8	2	
Carrying fire-arms and unlawful weapons...	1	1						
Contempt of Court.....								
Cruelty to animals.....					4	4		
Disturbing religious and like meetings..	1	1						
Fishery Acts, offences against.....					5	5		
Gambling Acts.....								
Game Laws.....					7	7		
Larceny.....								
“ of dogs, birds, &c.....								
“ of timber, trees, fruits, &c.....								
Liquor License Acts, offences against.....	1	1			30	30		
Breach of Canada Temperance Act.....								
Selling liquor during prohibited hours.	4	4						
“ to Indians.....					2	2		
“ without license.....	1	1			4	4		
Malicious injury to property.....					11	10	1	
Other damage to property.....					11	9	1	1
Master's and Servant's Acts, offences against					18	18		
Medical Acts, offences against.....								
Militia Acts.....								
Miscellaneous minor offences.....								
Municipal Acts and By-laws, breaches of...	5	5			43	42	1	
Exercising various callings without license								
Health By-laws, offences against.....	4	4						
Highways, offences relating to.....					6	6		
Neglecting to support family.....					4	1	3	
Pharmacy Acts, offences against.....								
Profanation of the Lord's Day.....								
Railway Acts, offences against.....					5		1	4
Revenue Laws.....								
Seamen Acts.....								
Statute Labor, offences relating to.....	1	1						
Threats and abusive language.....	1		1		41	39	1	1
Trespass.....	3	3			17	17		
Vagrancy.....	15	1	14		35	5	29	1
Drunkenness.....	16	16			175	171	3	1
Indecent exposure.....	1	1			4	2	2	
Insulting, obscene and profane language..	12	12			2	2		
Keeping, frequenting bawdy houses and inmates thereof.....	1	1			4	3	1	
Loose, idle, disorderly.....	11	11			16	15		1
Weights and Measures Acts, offences against					1		1	
Insanity.....					5			5
Totals.....	104	88	15	1	546	479	53	14

TABLEAU III.—CONDAMNATIONS SOMMAIRES PAR MAGISTRATS DE POLICE ET AUTRES JUGES DE PAIX.

PROVINCE D'ONTARIO— <i>Suite.</i>							
HURON.				KENT.			
Sentence.				Sentence.			
Con- vic- tions	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	Con- vic- tions	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
Total				Total			
Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.
24	24			55	51	3	1
				22	19	1	2
				2	2		
1	1			6	6		
1	1			6	6		
1	1			1	1		
				2	2		
				3	3		
				2	2		
4	4						
13	13			15	15		
11	11			6	6		
				3	3		
				3	3		
				2	2		
1	1			13	13		
2	2			6	6		
1	1			1	1		
10	10			17	17		
				2	2		
				11	11		
				1	1		
1	1			1	1		
4	2		2	3	2		1
5	5			11	11		
25	18	7		8	1	7	
14	13	1		137	136	1	
				12	10	1	1
6	6			15	15		
				2	2		
1	1			18	18		
4			4	1			1
129	115	8	6	387	368	13	6

Falsifications de substances alimentaires.
Voies de fait.
Troubler la paix.
Port d'armes illegal.
Mépris de cour.
Cruauté envers les animaux.
Perturbation de réunions religieuses et autres.
Infractions aux lois des pêcheries.
“ défendant le jeu.
“ de chasse.
Larcin.
Vol de chiens, oiseaux, etc.
“ bois, arbres, fruits, etc.
Infractions aux lois des licences de boissons.
Contraventions aux lois de tempérance du Canada.
Vente de boissons durant les heures défendues.
“ aux Sauvages.
“ sans licence.
Dommages malicieux à la propriété.
Autres dommages à la propriété.
Infractions aux lois concernant les maîtres et serviteurs.
Infractions aux lois concernant la médecine.
“ de la milice.
Divers petits délits.
Contraventions aux lois municipales.
Pratiquant divers états sans licence.
Infractions aux lois sur l'hygiène publique.
Délits ayant rapport aux chemins publics.
Négligence de pourvoir aux besoins de la famille.
Infract. aux lois concernant les pharmaciens.
Profanation du dimanche.
Infractions aux lois des chemins de fer.
Délits contre le revenu de l'Etat.
Infractions aux lois maritimes.
Délits ayant rapport à la corvée.
Menaces et langage injurieux.
Empiètement.
Vagabondage.
Ivresse.
Exposition indécente.
Langage insultant, obscène, profane.
Tenant, habitant et fréquentant des maisons de désordre.
Conduite déréglée.
Infractions aux lois des poids et mesures.
Aliénation mentale.
..... Totaux.

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	PROVINCE OF ONTARIO— <i>Continued.</i>							
	LAMBTON.				LANARK.			
	Sentence.				Sentence.			
	Con- vic- tions Total	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	Con- vic- tions Total	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.
Adulteration of Food.....	1	1						
Assaults.....	39	39			27	27		
Breach of peace.....	10	10			4	4		
Carrying fire-arms and unlawful weapons.....					3			3
Contempt of Court.....	2	2						
Cruelty to animals.....	15	15						
Disturbing religious and like meetings.....	7	7			1	1		
Fishery Acts, offences against.....	1	1						
Gambling Acts.....	5	5						
Game Laws.....								
Larceny.....								
“ of dogs, birds, &c.....								
“ of timber, trees, fruits, &c.....								
Liquor License Acts, offences against.....	16	16			10	10		
Breach of Canada Temperance Act.....								
Selling liquor during prohibited hours.....	6	6			8	8		
“ to Indians.....	1	1						
“ without licence.....	1	1						
Malicious injury to property.....	15	13		2	1	1		
Other damage to property.....					1	1		
Master's and Servant's Acts, offences against.....	1	1			1			1
Medical Acts, offences against.....					1	1		
Militia Acts.....								
Miscellaneous minor offences.....					1	1		
Municipal Acts and By-Laws, breaches of.....	39	39			4	4		
Exercising various callings without licence.....					3	3		
Health By-laws, offences against.....	2	2			1	1		
Highways, offences relating to.....	5	5			4	4		
Neglecting to support family.....	1	1						
Pharmacy Acts, offences against.....								
Profanation of the Lord's Day.....								
Railway Acts, offences against.....	1	1						
Revenue Laws.....								
Seamen Acts.....								
Statute Labor, offences relating to.....								
Threats and abusive language.....	4	3	1		2	1		1
Trespass.....	5	5						
Vagrancy.....	87	84		3	35			35
Drunkenness.....	189	187	2		9	9		
Indecent exposure.....	3	3						
Insulting, obscene and profane language.....	23	23			5	5		
Keeping, frequenting bawdy houses and inmates thereof.....	3	3						
Loose, idle, disorderly.....	2	2			6	6		
Weights and Measures Acts, offences against.....								
Insanity.....					6			6
Totals.....	484	476	3	5	133	87	35	11

TABLEAU III.—CONDAMNATIONS SOMMAIRES PAR MAGISTRATS DE POLICE
ET AUTRES JUGES DE PAIX.

PROVINCE D'ONTARIO— <i>Suite.</i>									
LEEDS AND GRENVILLE.				LENNOX AND ADDINGTON.					
Con- vic- tions	Sentence.			Con- vic- tions	Sentence.			OFFENSES.	
	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		
Total	—	—	—	Total	—	—	—		
Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.		
5	5			1	1				Falsifications de substances alimentaires.
54	49	5		33	33				Voies de fait.
8	8			1	1				Troubler la paix.
1		1							Port d'armes illégal.
									Mépris de cour.
4	4								Cruauté envers les animaux.
1	1			2	2			Perturbation de réunions religieuses et autres.	
								Infractions aux lois des pêcheries.	
4	4							“ défendant le jeu.	
1	1							“ de chasse.	
1	1							Larcin.	
								Vol de chiens, oiseaux, etc.	
1	1							“ bois, arbres, fruits, etc.	
12	12			18	18			Infractions aux lois des licences de boissons.	
								Contraventions aux lois de tempérance du	
								Canada.	
13	13			4	4			Vente de boissons durant les heures défendues.	
1		1						“ aux Sauvages.	
7	6	1						“ sans licence.	
6	6							Dommmages malicieux à la propriété.	
7	7			4	3	1		Autres dommmages à la propriété.	
16	16			2	2			Infractions aux lois concernant les maîtres et	
								serviteurs.	
1	1							Infractions aux lois concernant la médecine.	
								“ de la milice.	
								Divers petits délits.	
24	21		3	3	3			Contraventions aux lois municipales.	
2	2							Pratiquant divers états sans licence.	
2	2							Infractions aux lois sur l'hygiène publique.	
4	4			5	5			Délits ayant rapport aux chemins publics.	
2	1	1						Négligence de pourvoir aux besoins de la	
								famille.	
								Infract. aux lois concernant les pharmaciens.	
								Profanation du dimanche.	
11	10	1						Infractions aux lois des chemins de fer.	
1	1							Délits contre le revenu de l'Etat.	
								Infractions aux lois maritimes.	
1	1							Délits ayant rapport à la corvée.	
7	7			1	1			Menaces et langage injurieux.	
7	7			2	2			Empiètement.	
33	6	27		19	17	2		Vagabondage.	
119	118	1		58	58			Ivresse.	
								Exposition indécente.	
34	34			6	6			Langage insultant, obscène, profane.	
4	2	2		1		1		Tenant, habitant et fréquentant des maisons	
37	37			1	1			de désordre.	
								Conduite déréglée.	
2			2					Infractions aux lois des poids et mesures.	
								Aliénation mentale.	
433	388	40	5	161	157	4		Totaux.	

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	PROVINCE OF ONTARIO—Continued.							
	LINCOLN.				MIDDLESEX.			
	Sentence.				Sentence.			
	Con- vic- tions	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	Con- vic- tions	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
	Total	Con- dam- na- tions.	Sur- option	Emprison- nés sans option.	Total	Con- dam- na- tions.	Sur- option	Emprison- nés sans option.
Adulteration of Food.....					8	8		
Assaults.....	22		22		58	47	1	10
Breach of peace.....	4		4		5	2		3
Carrying fire-arms and unlawful weapons...	1		1					
Contempt of Court.....								
Cruelty to animals.....	1		1		3	1		2
Disturbing religious and like meetings.....	4		4		10	9		1
Fishery Acts, offences against.....					2	2		
Gambling Acts.....					2	2		
Game Laws.....								
Larceny.....								
“ of dogs, birds, &c.....								
“ of timber, trees, fruits, &c.....	1		1					
Liquor License Acts, offences against.....	14		14		52	47		5
Breach of Canada Temperance Act.....								
Selling liquor during prohibited hours....	4		4		2	2		
“ to Indians.....					5	5		
“ without license.....	4		4		6	5		1
Malicious injury to property.....	3		3		7	4		3
Other damage to property.....					3	2		1
Master's and Servant's Acts, offences against.	4		4		8	8		
Medical Acts, offences against.....					4	4		
Militia Acts.....								
Miscellaneous minor offences.....								
Municipal Acts and By-laws, breaches of...	3		3		75	65		10
Exercising various callings without license	2		2		1	1		
Health By-laws, offences against.....								
Highways, offences relating to.....					25	18		7
Neglecting to support family.....					1			1
Pharmacy Acts, offences against.....								
Profanation of the Lord's Day.....					5	4		1
Railway Acts, offences against.....	4		4		5	5		
Revenue Laws.....	1		1					
Seamen Acts.....								
Statute Labor, offences relating to.....	8		8		1	1		
Threats and abusive language.....	4		4		25	12	2	11
Trespass.....	13		13		12	12		
Vagrancy.....	7		2	5	76	23	39	14
Drunkenness.....	74		70	2	181	168	7	6
Indecent exposure.....	1		1		1	1		
Insulting, obscene and profane language...	2		2		9	8		1
Keeping, frequenting bawdy houses and immates thereof.....					11	7		4
Loose, idle, disorderly.....	20		20		28	13		15
Weights and Measures Acts, offences against.								
Insanity.....								
Totals.....	201		191	8	631	486	49	96

TABLEAU III.—CONDAMNATIONS SOMMAIRES PAR MAGISTRATS DE POLICE
ET AUTRES JUGES DE PAIX.PROVINCE D'ONTARIO—*Suite.*

NORFOLK.

NORTHUMBERLAND
AND DURHAM.

OFFENSES.

Con- vic- tions	Sentence.			Con- vic- tions	Sentence.			
	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	
Total				Total				
Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	
7	7			18	18			Falsifications de substances alimentaires.
27	26		1	39	38	1		Voies de fait.
				39	35	4		Troubler la paix.
								Port d'armes illégal.
1	1			6	6			Mépris de cour.
4	4			1	1			Cruauté envers les animaux.
				3	3			Perturbation de réunions religieuses et autres.
1	1			2	2			Infractions aux lois des pêcheries.
								“ défendant le jeu.
2	2			3	3			“ de chasse.
								Larcin.
1	1			27	27			Vol de chiens, oiseaux, etc.
				2	2			“ bois, arbres, fruits, etc.
								Infractions aux lois des licences de boissons.
1	1			10	10			Contraventions aux lois de tempérance du
								Canada.
1	1			3	3			Vente de boissons durant les heures défendues.
				13	13			“ aux Sauvages.
1	1			5	5			“ sans licence.
2	2			6	6			Dommmages malicieux à la propriété.
								Autres dommages à la propriété.
								Infractions aux lois concernant les maîtres et
								serveurs.
								Infractions aux lois concernant la médecine.
				1	1			“ de la milice.
4	4			32	32			Divers petits délits.
1	1			2		2		Contraventions aux lois municipales.
				1	1			Pratiquant divers états sans licence.
1	1			12	12			Infractions aux lois sur l'hygiène publique.
				1	1			Délits ayant rapport aux chemins publics.
								Négligence de pourvoir aux besoins de la
								famille.
								Infrac. aux lois concernant les pharmaciens.
								Profanation du dimanche.
								Infractions aux lois des chemins de fer.
								Délits contre le revenu de l'Etat.
1	1			2	2			Infractions aux lois maritime.
3	1		2	17	13		4	Délits ayant rapport à la corvée.
2	2			21	14	7		Menaces et langage injurieux.
4		4		23	3	18	2	Empiètement.
18	15	3		99	91	7	1	Vagabondage.
				1		1		Ivresse.
6	6			9	9			Exposition indécente.
								Langage insultant, obscène, profane.
								Tenant, habitant et fréquentant des maisons
5	5			22	21	1		de désordre.
								Conduite déréglée.
				2			2	Infractions aux lois des poids et mesures.
								Aliénation mentale.
93	83	7	3	422	372	41	9	.....Totaux.

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	PROVINCE OF ONTARIO—Continued.							
	ONTARIO.				OXFORD.			
	Con- vic- tions Total Con- dam- na- tions.	Sentence.			Con- vic- tions Total Con- dam- na- tions.	Sentence.		
		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
Sur- option	Emprison- sans option.	Re- mise, etc.	Sur- option	Emprison- sans option.	Re- mise, etc.			
Adulteration of Food.....				9	9			
Assaults.....	37	37		59	56	1	2	
Breach of peace.....	10	10		4	2		2	
Carrying fire-arms and unlawful weapons.....								
Contempt of Court.....								
Cruelty animals.....	4	4		3	3			
Disturbing religious and like meetings.....				3	3			
Fishery Acts, offences against.....	22	22						
Gambling Acts.....	1	1						
Game Laws.....								
Larceny.....								
“ of dogs, birds, &c.....	1	1						
“ of timber, trees, fruits, &c.....								
Liquor License Acts, offences against.....	28	28		26	26			
Breach of Canada Temperance Act.....	1	1						
Selling liquor during prohibited hours.....	3	3		2	2			
“ to Indians.....								
“ without license.....				3	3			
Malicious injury to property.....	1	1		1	1			
Other damage to property.....	2	1	1	8	8			
Master's and Servant's Acts, offences against.....	11	11		4	4			
Medical Acts, offences against.....	1	1						
Militia Acts.....	1	1						
Miscellaneous minor offences.....	1	1						
Municipal Acts and By-laws, breaches of.....	15	15		37	37			
Exercising various callings without license.....				2	2			
Health By-laws, offences against.....	1	1						
Highways, offences relating to.....	2	2		11	11			
Neglecting to support family.....	1	1		1			1	
Pharmacy, Acts, offences against.....	1	1						
Profanation of the Lord's Day.....	2	2		1	1			
Railway Acts, offences against.....	2	2		6	6			
Revenue Laws.....								
Seamen Acts.....								
Statute Labor, offences relating to.....	1	1		1	1			
Threats and abusive language.....	5	5		11	8		3	
Trespass.....	8	7	1	6	6			
Vagrancy.....	9		9	130	60	70		
Drunkenness.....	33	32	1	104	103	1		
Indecent exposure.....	2	2		2	2			
Insulting, obscene and profane language.....	17	16	1	10	10			
Keeping, frequenting bawdy houses and inmates thereof.....	3	3						
Loose, idle, disorderly.....	2	2		32	32			
Weights and Measures Acts, offences against.....								
Insanity.....								
Totals.....	227	214	9	4	476	396	72	8

TABLEAU III.—CONDAMNATIONS SOMMAIRES PAR MAGISTRATS DE POLICE ET AUTRES JUGES DE PAIX.

PROVINCE D'ONTARIO— <i>Suite.</i>								OFFENSES.
PEEL.				PERTH.				
Sentence.				Sentence.				
Con- vic- tions	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	Con- vic- tions	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	
Total	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Total	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	
Con- dam- na- tions.				Con- dam- na- tions.				
16	16			2	2			Falsifications de substances alimentaires.
1	1			5	5			Voies de fait.
				2	2			Troubler la paix.
								Port d'armes illégal.
1	1			1	1			Mépris de cour.
1	1							Cruauté envers les animaux.
								Perturbation de réunions religieuses et autres.
								Infractions aux lois des pêcheries.
								“ défendant le jeu.
								“ de chasse.
				2	2			Larcin.
								Vol de chiens, oiseaux, etc.
5	5			3	3			“ bois, arbres, fruits, etc.
								Infractions aux lois des licences de boissons.
				5	5			Contraventions aux lois de tempérance du Canada.
				3	2	1		Vente de boissons durant les heures défendues.
1	1							“ aux Sauvages.
6	6			2	2			“ sans licence.
				2	2			Dommages malicieux à la propriété.
								Autres dommages à la propriété.
								Infractions aux lois concernant les maîtres et serveurs.
								Infractions aux lois concernant la médecine.
								“ de la milice.
5	5			1	1			Divers petits délits.
1	1							Contraventions aux lois municipales.
								Pratiquant divers états sans licence.
2	2							Infractions aux lois sur l'hygiène publique.
								Délits ayant rapport aux chemins publics.
								Négligence de pourvoir aux besoins de la famille.
1	1							Infract. aux lois concernant les pharmaciens.
				1	1			Profanation du dimanche.
								Infractions aux lois des chemins de fer.
								Délits contre le revenu de l'Etat.
1	1							Infractions aux lois maritimes.
4	4			4	4			Délits ayant rapport à la corvée.
1	1			2	2			Menaces et langage injurieux.
2	1	1		1		1		Empiètement.
11	11			11	11			Vagabondage.
								Ivresse.
4	4			3	3			Exposition indécente.
								Langage insultant, obscène, profane.
								Tenant, habitant et fréquentant des maisons de désordre.
6	6			2	2			Conduite déréglée.
				1				Infractions aux lois des poids et mesures.
							1	Aliénation mentale.
69	68	1		53	50	2	1	Totaux.

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	PROVINCE OF ONTARIO—Continued.							
	PETERBOROUGH.				PRESCOTT AND RUSSELL.			
	Con- vic- tions Total Con- dam- na- tions.	Sentence.			Con- vic- tions Total Con- dam- na- tions.	Sentence.		
		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
		Sur- option	Empri- sonnés sans option.	Re- mise, etc.		Sur- option	Empri- sonnés sans option.	Re- mise, etc.
Adulteration of Food.....	12	12						
Assaults.....	31	24	5	2	12	12		
Breach of peace.....								
Carrying fire-arms and unlawful weapons.....								
Contempt of Court.....	1	1						
Cruelty to animals.....	1	1			3	3		
Disturbing religious and like meetings.....	1	1						
Fishery Acts, offences against.....	2	2						
Gambling Acts.....	1	1						
Game Laws.....								
Larceny.....	1			1	2	2		
“ of dogs, birds, &c.....								
“ of timber, trees, fruits, &c.....	7	7			2	2		
Liquor License Acts, offences against.....	29	29			5	5		
Breach of Canada Temperance Act.....								
Selling liquor during prohibited hours.....								
“ to Indians.....								
“ without licence.....	1	1			3	3		
Malicious injury to property.....	5	5			2	2		
Other damage to property.....	4	4			2	2		
Master's and Servant's Acts, offences against.....								
Medical Acts, offences against.....					2	2		
Militia Acts.....								
Miscellaneous minor offences.....								
Municipal Acts and By-Laws, breaches of.....	16	16			1	1		
Exercising various callings without license.....								
Health By-laws, offences against.....								
Highways, offences relating to.....	7	7						
Neglecting to support family.....								
Pharmacy Acts, offences against.....								
Profanation of the Lord's Day.....	4	4						
Railway Acts, offences against.....								
Revenue Laws.....								
Seamen Acts.....								
Statute Labor, offences relating to.....								
Threats and abusive language.....	2	2			7	6		1
Trespass.....	3	3			4	4		
Vagrancy.....	35	3	31	1				
Drunkenness.....	68	64	4		8	8		
Indecent exposure.....	7	6	1					
Insulting, obscene and profane language.....								
Keeping, frequenting bawdy houses and inmates thereof.....	1			1				
Loose, idle, disorderly.....	30	29	1		1	1		
Weights and Measures Acts, offences against.....								
Insanity.....	4			4				
Totals.....	273	222	42	9	54	53		1

TABLEAU III.—CONDAMNATIONS SOMMAIRES PAR MAGISTRATS DE POLICE ET AUTRES JUGES DE PAIX.

PROVINCE D'ONTARIO— <i>Suite.</i>							
PRINCE EDWARD.				RENFREW.			
Sentence.				Sentence.			
Con- vic- tions	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	Con- vic- tions	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
Total	—	—	—	Total	—	—	—
Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.
6	6			53	53		
				7	7		
				2	1		1
				1	1		
				2	2		
1	1			4	4		
1	1			1	1		
				1	1		
				10	9	1	
1	1			8	8		
				1	1		
				8	8		
				7	7		
				6	6		
1	1			1	1		
				12	12		
				2	2		
1	1			10	10		
				1	1		
				1		1	
				2	2		
				4	4		
5	5			9	9		
				9	3	6	
31	31			22	22		
				21	21		
				6	6		
47	47			211	202	8	1

Falsifications de substances alimentaires.
Voies de fait.
Troubler la paix.
Port d'armes illegal.
Mépris de cour.
Cruauté envers les animaux.
Perturbation de réunions religieuses et autres.
Infractions aux lois des pêcheries.
“ défendant le jeu.
“ de chasse.
Larcin.
Vol de chiens, oiseaux, etc.
“ bois, arbres, fruits, etc.
Infractions aux lois des licences de boissons.
Contraventions aux lois de tempérance du Canada.
Vente de boissons durant les heures défendues.
“ aux Sauvages.
“ sans licence.
Dommages malicieux à la propriété.
Autres dommages à la propriété.
Infractions aux lois concernant les maîtres et serveurs.
Infractions aux lois concernant la médecine.
“ de la milice.
Divers petits délits.
Contraventions aux lois municipales.
Pratiquant divers états sans licence.
Infractions aux lois sur l'hygiène publique.
Délits ayant rapport aux chemins publics.
Négligence de pourvoir aux besoins de la famille.
Infract. aux lois concernant les pharmaciens.
Profanation du dimanche.
Infractions aux lois des chemins de fer.
Délits contre le revenu de l'Etat.
Infractions aux lois maritimes.
Délits ayant rapport à la corvée.
Menaces et langage injurieux.
Empiètement.
Vagabondage.
Ivresse.
Exposition indécente.
Langage insultant, obscène, profane.
Tenant, habitant et fréquentant des maisons de désordre.
Conduite déréglée.
Infractions aux lois des poids et mesures.
Aliénation mentale.
Totaux.

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

PROVINCE OF ONTARIO—Continued.								
OFFENCES.	SIMCOE.				STORMONT, DUNDAS AND GLENGARRY.			
	Con- vic- tions Total	Sentence.			Con- vic- tions Total	Sentence.		
		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	
Adulteration of Food.....	1	1						
Assaults.....	68	68			31	30	1	
Breach of peace.....	7	6		1	3	3		
Carrying fire-arms and unlawful weapons.....	4	4			1	1		
Contempt of Court.....	1	1						
Cruelty to animals.....					1	1		
Disturbing religious and like meetings.....	10	10						
Fishery Acts, offences against.....	5	5						
Gambling Acts.....	3	3			1	1		
Game Laws.....								
Larceny.....	4	4						
“ of dogs, birds, &c.....								
“ of timber, trees, fruits, &c.....	3	3			1	1		
Liquor License Acts, offences against.....	20	20			13	13		
Breach of Canada Temperance Act.....								
Selling liquor during prohibited hours.....	12	12			3	3		
“ to Indians.....	1	1						
“ without license.....	6	5	1		1	1		
Malicious injury to property.....	3	3			7	7		
Other damage to property.....	7	7			1	1		
Master's and Servants Acts, offences against.....	10	10						
Medical Act, offences against.....	1	1						
Militia Acts.....								
Miscellaneous minor offences.....								
Municipal Acts and By-Laws, breaches of.....	54	52		2	18	18		
Exercising various callings without license.....	12	12			4	4		
Health By-laws, offences against.....	1	1						
Highways, offences relating to.....	3	3			3	3		
Neglecting to support family.....	1	1						
Pharmacy Acts, offences against.....								
Profanation of the Lord's Day.....								
Railway Acts, offences against.....	10	10						
Revenue Laws.....								
Seamen Acts.....								
Statute Labor, offences relating to.....					1	1		
Threats and abusive language.....	17	16	1		6	6		
Trespass.....	16	12		4	9	9		
Vagrancy.....	31	21	10		2	1	1	
Drunkenness.....	97	94	1	2	36	33		3
Indecent exposure.....	1	1						
Insulting, obscene and profane language.....	5	5			10	10		
Keeping, frequenting bawdy houses and inmates thereof.....	20	16	1	3				
Loose, idle, disorderly.....	14	14			13	12		1
Weights and Measures Acts, offences against.....					1	1		
Insanity.....	10			10	2			2
Totals.....	458	422	14	22	168	160	2	6

TABLEAU III.—CONDAMNATIONS SOMMAIRES PAR MAGISTRATS DE POLICE ET AUTRES JUGES DE PAIX.

PROVINCE D'ONTARIO— <i>Suite.</i>							
THUNDER BAY.				VICTORIA.			
Sentence.				Sentence.			
Con- vic- tions	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	Con- vic- tions	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
Total	—	—	—	Total	—	—	—
Con- dam- na- tions.	Sur option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur option	Empri- sonnés sans option.	Re- mise, etc.
31	29		2	19	19		
				39	37	2	
				14	12		2
				2	1		1
				1	1		
2	2			1	1		
2	1		1				
12	12			15	15		
5	5			8	8		
5	5						
6	6			2	2		
4	4			1	1		
2	2			6	6		
8	7		1	2	2		
				1	1		
7	5		2	32	32		
				3	3		
5	5			1	1		
19	19						
5	3	1	1	8	7	1	
1	1			1	1		
7	2	4	1	25		25	
95	90	5		30	29	1	
				11	11		
24	24			9	7	2	
4	4			10	10		
3			3	5			5
247	226	10	11	246	207	31	8

OFFENSES.			
Falsifications de substances alimentaires.			
Voies de fait.			
Troubler la paix.			
Port d'armes illégal.			
Mépris de cour.			
Cruauté envers les animaux.			
Perturbation de réunions religieuses et autres.			
Infractions aux lois des pêcheries.			
“ défendant le jeu.			
“ de chasse.			
Larcin.			
Vol de chiens, oiseaux, etc.			
“ bois, arbres, fruits, etc.			
Infractions aux lois des licences de boissons.			
Contraventions aux lois de tempérance du			
Canada.			
Vente de boissons durant les heures défendues			
“ aux Sauvages.			
“ sans licence.			
Dommages malicieux à la propriété.			
Autres dommages à la propriété.			
Infractions aux lois concernant les maîtres et			
serveurs.			
Infractions aux lois concernant la médecine.			
“ de la milice.			
Divers petits délits.			
Contraventions aux lois municipales.			
Pratiquant divers états sans licence.			
Infractions aux lois sur l'hygiène publique.			
Délits ayant rapport aux chemins publics.			
Négligence de pourvoir aux besoins de la			
famille.			
Infrac. aux lois concernant les pharmaciens.			
Profanation du dimanche.			
Infractions aux lois des chemins de fer.			
Délits contre le revenu de l'Etat.			
Infractions aux lois maritimes.			
Délits ayant rapport à la corvée.			
Menaces et langage injurieux.			
Empiètement.			
Vagabondage.			
Ivresse.			
Exposition indécente.			
Langage insultant, obscène, profane.			
Tenant, habitant et fréquentant des maisons			
de désordre.			
Conduite déréglée			
Infractions aux lois des poids et mesures.			
Aliénation mentale.			
Totaux.			

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	PROVINCE OF ONTARIO— <i>Continued.</i>							
	WATERLOO.				WELLAND.			
	Con- vic- tions Total	Sentence.			Con- vic- tions Total	Sentence.		
		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
	Con- dam- na- tions.	Sur option	Emprison- nés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur option	Emprison- nés sans option.	Re- mise, etc.
Adulteration of Food.....	1	1						
Assaults.....	45	45			39	37	2	
Breach of peace.....	15	15			3	2		1
Carrying fire-arms and unlawful weapons...	3	3			1	1		
Contempt of Court.....								
Cruelty to animals.....	3	3			4	4		
Disturbing religious and like meetings..	2	2			4	4		
Fishery Acts, offences against.....								
Gambling Acts.....	1	1			1	1		
Game Laws.....								
Larceny.....								
“ of dogs, birds, &c.....								
“ of timber, trees, fruits, &c.....					2			2
Liquor License Acts, offences against.....	4	4			31	30	1	
Breach of Canada Temperance Act.....								
Selling liquor during prohibited hours. ...	17	17						
“ to Indians.....								
“ without license.....	4	4						
Malicious injury to property.....	1	1						
Other damage to property.....	5	5			2	2		
Master's and Servant's Acts, offences against								
Medical Acts, offences against.....	3	3			1	1		
Militia Acts.....								
Miscellaneous minor offences.....								
Municipal Acts and By-laws, breaches of...	18	16		2	5	4		1
Exercising various callings without license	1	1						
Health By-laws, offences against.....	2	2						
Highways, offences relating to.....	10	10						
Neglecting to support family.....					1		1	
Pharmacy Acts, offences against.....								
Profanation of the Lord's Day.....	2	2			11	11		
Railway Acts, offences against.....	4	4			5	1	4	
Revenue Laws.....								
Seamen Acts.....								
Statute Labor, offences relating to.....								
Threats and abusive language.....	2	2			9	9		
Trespass.....	11	11			12	9	3	
Vagrancy.....	16	14	2		119	1	117	1
Drunkenness.....	26	25	1		32	21		1
Indecent exposure.....	1	1						
Insulting, obscene and profane language..	9	9			4	4		
Keeping, frequenting bawdy houses and inmates thereof.....					1		1	
Loose, idle, disorderly.....	17	17			10	10		
Weights and Measures Acts, offences against	1	1						
Insanity.....								
Totals.....	224	219	3	2	287	152	129	6

TABLEAU III.—CONDAMNATIONS SOMMAIRES PAR MAGISTRATS DE POLICE ET AUTRES JUGES DE PAIX.

PROVINCE D'ONTARIO— <i>Suite.</i>							
WELLINGTON.				WENTWORTH.			
Con- vic- tions	Sentence.			Con- vic- tions	Sentence.		
	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
Total	—	—	—	Total	—	—	—
Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.
6	6						
47	46	1		226	220	5	1
5	5			44	44		
3	3			26	26		
3	2	1					
1	1			15	15		
				1			1
24	24			97	97		
8	8			8	8		
2	2			1	1		
1	1						
2	2			48	48		
7	7			4	4		
				1	1		
20	20			207	204	1	2
2	2						
6	6			19	19		
				1	1		
2	2						
2	2						
10	9		1	2	2		
				8	8		
10	10			111	108	3	
28	15	13		44	40	4	
36	36			490	481	5	4
				8	8		
13	13			47	46		1
2		2		23	11	12	
30	30			89	89		
1			1	2			2
271	252	17	2	1,523	1,481	30	12

Falsifications de substances alimentaires.
Voies de fait.
Troubler la paix.
Port d'armes illégal.
Mépris de cour.
Cruauté envers les animaux.
Perturbation de réunions religieuses et autres.
Infractions aux lois des pêcheries.
“ défendant le jeu.
“ de chasse.
Larcin.
Vol de chiens, oiseaux, etc.
“ bois, arbres, fruits, etc.
Infractions aux lois des licences de boissons.
Contraventions aux lois de tempérance du Canada.
Vente de boissons durant les heures défendues.
“ aux Sauvages.
“ sans licence.
Domages malicieux à la propriété.
Autres dommages à la propriété.
Infractions aux lois concernant les maîtres et serviteurs.
Infractions aux lois concernant la médecine.
“ de la milice.
Divers petits délits.
Contraventions aux lois municipales.
Pratiquant divers états sans licence.
Infractions aux lois sur l'hygiène publique.
Délits ayant rapport aux chemins publics.
Négligence de pourvoir aux besoins de la famille.
Infract. aux lois concernant les pharmaciens.
Profanation du dimanche.
Infractions aux lois des chemins de fer.
Délits contre le revenu de l'Etat.
Infractions aux lois maritimes.
Délits ayant rapport à la corvée.
Menaces et langage injurieux.
Empiètement.
Vagabondage.
Ivresse.
Exposition indécente.
Langage insultant, obscène, profane.
Tenant, habitant et fréquentant des maisons de désordre.
Conduite déréglée.
Infractions aux lois des poids et mesures.
Aliénation mentale.
.....Totaux.

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	PROVINCE OF ONTARIO— <i>Concluded.</i>							
	PROVINCE D'ONTARIO— <i>Fin.</i>							
	YORK.				Totals of Ontario.			
	Sentence.				Sentence.			
	Con- vic- tions Total	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	Con- vic- tions Total	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
	Con- dam- na- tions.	Sur option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur option	Empri- sonnés sans option.	Re- mise, etc.
Adulteration of Food.....					150	150		
Assaults.....	222	212	2	8	1,893	1,820	44	29
Breach of peace.....	5	4		1	426	405	8	13
Carrying fire-arms and unlawful weapons.....	3	3			35	27	1	7
Contempt of Court.....	1	1			7	7		
Cruelty to animals.....	169	169			289	287		2
Disturbing religious and like meetings.....	10	10			103	101	1	1
Fishery Acts, offences against.....	1			1	57	56		1
Gambling Acts.....					50	50		
Game Laws.....	18	18			33	33		
Larceny.....	7	7			41	36		5
“ of dogs, birds, &c.....					10	10		
“ of timber, trees, fruits, &c.....	4	4			32	27	2	3
Liquor License Acts, offences against.....	133	133			834	825	4	5
Breach of Canada Temperance Act.....					3	3		
Selling liquor during prohibited hours.....					231	231		
“ to Indians.....					34	30	3	1
“ without license.....	1	1			118	114	3	1
Malicious injury to property.....	26	26			153	146	2	5
Other damage to property.....	2	1		1	199	193	2	4
Master's and Servant's Acts, offences against.....	110	110			276	274		2
Medical Acts, offences against.....	1	1			29	29		
Militia Acts.....					2	2		
Miscellaneous minor offences.....	2	2			8	8		
Municipal Acts and By-laws, breaches of.....	1,486	1,486			2,492	2,467	3	22
Exercising various callings without license.....	4	4			55	53	2	
Health By-laws, offences against.....	40	40			80	80		
Highways, offences relating to.....	9	9			264	257		7
Neglecting to support family.....	1	1			16	9	5	2
Pharmacy Acts, offences against.....	2	2			3	3		
Profanation of the Lord's Day.....	13	13			55	54		1
Railway Acts, offences against.....	63	49	12	2	172	143	23	6
Revenue Laws.....	2	2			5	5		
Seamen Acts.....					1		1	
Statute Labor, offences relating to.....	2	2			53	52		1
Threats and abusive language.....	39	7		32	308	228	8	72
Trespass.....	173	165	7	1	559	532	20	7
Vagrancy.....	135	116	19		1,217	505	686	26
Drunkenness.....	1,647	1,646	1		4,973	4,867	83	23
Indecent exposure.....	5	5			71	61	9	1
Insulting, obscene and profane language.....	37	37			465	462		3
Keeping, frequenting bawdy houses and inmates thereof.....	51	51			187	144	35	8
Loose, idle, disorderly.....	567	566		1	1,279	1,249	6	24
Weights and Measures Acts, offences against.....	3	3			15	14	1	
Insanity.....	1			1	60			60
Totals.....	4,995	4,906	41	48	17,343	16,049	952	342

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	PROVINCE OF MANITOBA— <i>Concluded.</i>							
	PROVINCE DE MANITOBA— <i>Fin.</i>							
	WESTERN—OUEST.				Totals of Manitoba.			
	Sentence.				Sentence.			
	Con- vic- tions Total	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	Con- vic- tions Total	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
	Con- dam- na- tion.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.
Adulteration of Food.								
Assaults.	12	12			58	58		
Breach of peace.								
Carrying fire-arms and unlawful weapons.								
Contempt of Court.								
Cruelty to animals.					2	2		
Disturbing religious and like meetings.					5	5		
Fishery Acts, offences against.								
Gambling Acts.					1	1		
Game Laws.								
Larceny.								
“ of dogs, birds, &c.								
“ of timber, trees, fruits, &c.								
Liquor License Acts, offences against.								
Breach of Canada Temperance Act.								
Selling liquor during prohibited hours.	6	6			8	8		
“ to Indians.					1	1		
“ without license.	2	2			2	2		
Malicious injury to property.					8	8		
Other damage to property.	2	2			2	2		
Master's and Servant's Acts, offences against.					61	61		
Medical Act, offences against.								
Militia Acts.								
Miscellaneous minor offences.					2	2		
Municipal Acts and By-Laws, breaches of.					33	32		1
Exercising various callings without license.					9	9		
Health By-laws, offences against.					35	34		1
Highways, offences relating to.					17	17		
Neglecting to support family.								
Pharmacy Acts, offences against.					1	1		
Profanation of the Lord's Day.					1	1		
Railway Acts, offences against.								
Revenue Laws.								
Seamen Acts.								
Statute Labor, offences relating to.								
Threats and abusive language.					15	12		3
Trespass.								
Vagrancy.	7	1	5	1	52	2	27	23
Drunkenness.					518	471	1	46
Indecent exposure.					1	1		
Insulting, obscene and profane language.					2	2		
Keeping, frequenting bawdy houses and inmates thereof.	2	2			51	51		
Loose, idle, disorderly.					18	15		3
Weights and Measures Acts, offences against.					1	1		
Insanity.								
Totals.	31	25	5	1	904	799	28	77

TABLEAU III.—CONDAMNATIONS SOMMAIRES PAR MAGISTRATS DE POLICE ET AUTRES JUGES DE PAIX.

PROVINCE OF BRITISH COLUMBIA.							
PROVINCE DE COLOMBIE-BRITANNIQUE.							
CLINTON.				NEW WESTMINSTER.			
Con- vic- tions	Sentence.			Con- vic- tions	Sentence.		
	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
Total	—	—	—	Total	—	—	—
Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.
							OFFENSES.
				37	37		Falsifications de substances alimentaires.
				5	5		Voies de fait.
				2	2		Troubler la paix.
				6	5	1	Port d'armes illégal.
				5	5		Mépris de cour.
							Cruauté envers les animaux.
							Perturbation de réunions religieuses et autres.
				26	26		Infractions aux lois des pêcheries.
				1	1		“ défendant le jeu.
				1	1		“ de chasse.
							Larcin.
							Vol de chiens, oiseaux, etc.
							“ bois, arbres, fruits, etc.
							Infractions aux lois des licences de boissons.
							Contraventions aux lois ds tempérance du
							Canada.
17	7	10		80	15	*65	Vente de boissons durant les heures défendues.
				4	3	1	“ aux Sauvages.
				11	11		“ sans licence.
							Dommages malicieux à la propriété.
							Autres dommages à la propriété.
							Infractions aux lois concernant les maîtres et
							serveurs.
							Infractions aux lois concernant la médecine.
							“ de la milice.
				2	2		Divers petits délits.
				47	47		Contraventions aux lois municipales.
							Pratiquant divers états sans licence.
							Infractions aux lois sur l'hygiène publique.
							Délits ayant rapport aux chemins publics.
							Négligence de pourvoir aux besoins de la
							famille.
1	1			1		1	Infrac. aux lois concernant les pharmaciens.
							Profanation du dimanche.
							Infractions aux lois des chemins de fer.
				1		1	Délits contre le revenu de l'Etat.
							Infractions aux lois maritime.
				1	1		Délits ayant rapport à la corvée.
							Menaces et langage injurieux.
							Empiètement.
				16		16	Vagabondage.
				131	119	12	Ivresse.
				1		1	Exposition indécente.
				7	7		Langage insultant, obscène, profane.
							Tenant, habitant et fréquentant des maisons
							de désordre
				1	1		Conduite déréglée.
							Infractions aux lois des poids et mesures.
				3			Aliénation mentale.
18	8	10		389	289	97	3
							..... Totaux.

* 26 both goal and fined—26 la prison et l'amende.

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	PROVINCE OF BRITISH COLUMBIA— <i>Concluded.</i>							
	PROVINCE DE LA COLOMBIE-BRITANNIQUE— <i>Fin.</i>							
	VICTORIA.				Totals of British Columbia.			
	Sentence.				Sentence.			
	Con- vic- tions Total	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	Con- vic- tions Total	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.
Adulteration of Food.....								
Assaults.....	33	28	5		70	65	5	
Breach of peace.....	8	7	1		13	12	1	
Carrying fire-arms and unlawful weapons...	2	1	1		4	3	1	
Contempt of Court.....					6	5	1	
Cruelty to animals.....	2	2			7	7		
Disturbing religious and like meetings.....	1		1		1		1	
Fishery Acts, offences against.....								
Gambling Acts.....	43	42	1		69	68	1	
Game Laws.....					1	1		
Larceny.....					1	1		
“ of dogs, birds, &c.....								
“ of timber, trees, fruits, &c.....								
Liquor License Acts, offences against.....								
Breach of Canada Temperance Act.....								
Selling liquor during prohibited hours.....	45	26	19		142	48	*94	
“ to Indians.....	1	1			5	4	1	
“ without license.....	2	2			2	2		
Malicious injury to property.....					11	11		
Other damage to property.....								
Master's and Servant's Acts, offences against.....								
Medical Acts, offences against.....								
Militia Acts.....								
Miscellaneous minor offences.....					2	2		
Municipal Acts and By-laws, breaches of.....	72	72			119	119		
Exercising various callings without license.....	5	5			5	5		
Health By-laws, offences against.....	3	3			3	3		
Highways, offences relating to.....	8	8			8	8		
Neglecting to support family.....								
Pharmacy Acts, offences against.....					2	1	1	
Profanation of the Lord's Day.....								
Railway Acts, offences against.....	1	1			1	1		
Revenue Laws.....								
Seamen Acts.....					1		1	
Statute Labor, offences relating to.....								
Threats and abusive language.....	2	2			3	3		
Trespass.....								
Vagrancy.....	20	5	15		36	5	31	
Drunkemness.....	520	480	40		651	599	52	
Indecent exposure.....					1	1		
Insulting, obscene and profane language.....	1	1			8	8		
Keeping, frequenting bawdy houses and inmates thereof.....	34	33	1		34	33	1	
Loose, idle, disorderly.....	5	4	1		6	5	1	
Weights and Measures Acts, offences against.....								
Insanity.....					3			3
Totals.....	808	723	85		1,215	1,020	192	3

* 26 both gaol and fined.—26 la prison et l'amende.

TABLEAU III.—CONDAMNATIONS SOMMAIRES PAR MAGISTRATS DE POLICE ET AUTRES JUGES DE PAIX.

THE TERRITORIES. — LES TERRITOIRES.							
Alberta, Northern—Nord.				Alberta, Southern—Sud.			
Sentence.				Sentence.			
Con- vic- tions	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	Con- vic- tions	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
Total				Total			
Con- dam- na- tions.	Sur- option	Emprisonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur- option	Emprisonnés sans option.	Re- mise, etc.
10	9		1	13	13		
3	3						
2	2						
1	1						
		</					

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	THE TERRITORIES—Continued. LES TERRITOIRES—Suite.							
	Assiniboia, Eastern—Est.				Assiniboia, Western—Ouest.			
	Sentence.				Sentence.			
	Con- vic- tions	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	Con- vic- tions	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
	Total	Con- dam- na- tions.	Sur option	Empri- sonnés sans option.	Total	Con- dam- na- tions.	Sur option	Empri- sonnés sans option.
Adulteration of Food.....								
Assaults.....	15		15		7		6	1
Breach of peace.....	1		1					
Carrying fire-arms and unlawful weapons...	1			1				
Contempt of Court.....								
Cruelty to animals.....								
Disturbing religious and like-meetings.....								
Fishery Acts, offences against.....								
Gambling Acts.....								
Game Laws.....								
Larceny.....	1		1					
“ of dogs, birds, &c.....								
“ of timber, trees, fruits, &c.....								
Liquor License Acts, offences against.....								
Breach of Canada Temperance Act.....								
Selling liquor during prohibited hours.....								
“ to Indians.....	3		1	2				
“ without license.....	5		5		4		4	
Malicious injury to property.....	1		1		2			2
Other damage to property.....	2		2					
Master's and Servant's Acts, offences against.....	3		3					
Medical Acts, offences against.....								
Militia Acts.....								
Miscellaneous minor offences.....	1		1					
Municipal Acts and By-laws, breaches of.....								
Exercising various callings without license.....	1		1					
Health By-laws, offences against.....	1		1					
Highways, offences relating to.....								
Neglecting to support family.....								
Pharmacy Acts, offences against.....								
Profanation of the Lord's Day.....								
Railway Acts, offences against.....								
Revenue Laws.....	2		2					
Seamen Acts.....								
Statute Labor, offences relating to.....								
Threats and abusive language.....								
Trespass.....								
Vagrancy.....	5			5	2		1	1
Drunkenness.....	8		8		1		1	
Indecent exposure.....								
Insulting, obscene and profane language.....								
Keeping, frequenting bawdy houses and inmates thereof.....								
Loose, idle, disorderly.....								
Weights and Measures Acts, offences against.....								
Insanity.....								
Totals.....	50		42	8	16		12	4

TABLEAU III.—CONDAMNATIONS SOMMAIRES PAR MAGISTRATS DE POLICE ET AUTRES JUGES DE PAIX.

THE TERRITORIES— <i>Concl'd.</i> LES TERRITOIRES— <i>Fin.</i>				GRAND TOTALS. GRANDS TOTAUX.				OFFENSES.
SASKATCHEWAN.				PRINCE EDWARD ISLAND. ILE DU PRINCE-EDOUARD.				
Con- vic- tions Total	Sentence.			Con- vic- tions Total	Sentence.			
	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	
Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	
7	6	1		35	33		2	
								Falsifications de substances alimentaires.
								Voies de fait.
								Troubler la paix.
								Port d'armes illégal.
				2	2			Mépris de cour.
								Cruauté envers les animaux.
								Perturbation de réunions religieuses et autres.
								Infractions aux lois des pêcheries.
								“ défendant le jeu.
								“ de chasse.
								Larcin.
								Vol de chiens, oiseaux, etc.
				1	1			“ bois, arbres, fruits, etc.
				89	79	10		Infractions aux lois des licences de boissons.
								Contraventions aux lois de tempérance du
								Canada.
								Vente de boissons durant les heures défendues.
3	3							“ aux Sauvages.
				3	3			“ sans licence.
								Dommmages malicieux à la propriété.
2	2							Autres dommmages à la propriété.
								Infractions aux lois concernant les maîtres et
								serveurs.
								Infractions aux lois concernant la médecine.
								“ de la milice.
3	3			7	7			Divers petits délits.
								Contraventions aux lois municipales.
				15	15			Pratiquant divers états sans licence.
				5	5			Infractions aux lois sur l'hygiène publique.
								Délits ayant rapport aux chemins publics.
								Négligence de pourvoir aux besoins de la
								famille.
				15	15			Infract. aux lois concernant les pharmaciens.
								Profanation du dimanche.
				1	1			Infractions aux lois des chemins de fer.
								Délits contre le revenu de l'Etat.
								Infractions aux lois maritimes.
				9	9			Délits ayant rapport à la corvée.
								Menaces et langage injurieux.
1		1		9		9		Empiètement.
1	1			311	310	1		Vagabondage.
				1	1			Ivresse.
				1	1			Exposition indécente.
								Langage insultant, obscène, profane.
								Tenant, habitant et fréquentant des maisons
								de désordre.
				22	22			Conduite déréglée.
								Infractions aux lois des poids et mesures.
								Aliénation mentale.
17	15	2		526	504	20	2	Totaux.

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	GRAND TOTALS— <i>Continued.</i>							
	NOVA SCOTIA. — NOUVELLE-ECOSSE.				NEW BRUNSWICK. — NOUVEAU-BRUNSWICK.			
	Sentence.				Sentence.			
	Con- vic- tions	Op- tion of a fine.	Com- mitted without option	De- ferre &c.	Con- vic- tions	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
	Total	Con- dam- na- tions.	Sur option	Empri- sonnés sans option.	Total	Con- dam- na- tions.	Sur option	Empri- sonnés sans option.
Adulteration of Food								
Assaults	185	160	12	13	225	218	5	2
Breach of peace	30	28		2	71	71		
Carrying fire-arms and unlawful weapons					3	2	1	
Contempt of Court	1	1						
Cruelty to animals	7	7			8	8		
Disturbing religious and like meetings	14	14			9	9		
Fishery Acts, offences against								
Gambling Acts								
Game Laws								
Larceny	6	6			2	1	1	
“ of dogs, birds, &c								
“ of timber, trees, fruits, &c.	5	5			9	9		
Liquor License Acts, offences against	67	62	5		10	10		
Breach of Canada Temperance Act	13	13			110	107	3	
Selling liquor during prohibited hours					24	24		
“ to Indians					1	1		
“ without license	38	33	5		100	97	3	
Malicious injury to property	7	7			14	14		
Other damage to property	13	9	3	1	16	16		
Master's and Servant's Acts, offences against								
Medical Acts, offences against								
Militia Acts								
Miscellaneous minor offences	6	2	4		7	7		
Municipal Acts and By-laws, breaches of	37	37			55	49		6
Exercising various callings without license	1	1			2	2		
Health By-laws, offences against	18	18			5	5		
Highways, offences relating to	35	35			8	7		1
Neglecting to support family	2	2						
Pharmacy Acts, offences against								
Profanation of the Lord's Day					9	9		
Railway Acts, offences against	9	7	1	1	26	25		1
Revenue Laws								
Seamen Acts	55	5	28	22	19	7	2	10
Statute Labor, offences relating to								
Threats and abusive language	29	18		11	40	39		1
Trespass								
Vagrancy	71	1	66	4	19	9	7	3
Drunkenness	635	583	31	21	1,628	1,566	60	2
Indecent exposure	6	5	1					
Insulting, obscene and profane language	5	4	1		13	13		
Keeping, frequenting bawdy houses and inmates thereof	12	6	6		9	9		
Loose, idle, disorderly	47	39	6	2	2	1		1
Weights and Measures Acts, offences against								
Insanity								
Totals	1,354	1,108	169	77	2,444	2,335	82	27

TABLEAU III.—CONDAMNATIONS SOMMAIRES PAR MAGISTRATS DE POLICE ET AUTRES JUGES DE PAIX.

GRANDS TOTAUX— <i>Suite.</i>							
QUEBEC.				ONTARIO.			
Con- vic- tions	Sentence.			Con- vic- tions	Sentence.		
	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.		Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
Total	—	—	—	Total	—	—	—
Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.
2	2			150	150		
873	710	70	93	1,893	1,820	44	29
285	197	39	40	426	405	8	13
21	7	1	13	35	27	1	7
1	1			7	7		
39	33		6	289	287		2
15	12		3	103	101	1	1
12	12			57	56		1
4	4			50	50		
4	4			33	33		
				41	36		5
				10	10		
9	9			32	27	2	3
71	71			834	825	4	5
6	6			3	3		
119	119			231	231		
3	3			34	30	3	1
235	235			118	114	3	1
8	8			153	146	2	5
233	219	4	10	199	193	2	4
8	8			276	274		2
				29	29		
				2	2		
3	3			8	8		
323	312	2	9	2,492	2,467	3	22
96	96			55	53	2	
17	17			80	80		
22	22			264	257		7
2	2			16	9	5	2
2	2			3	3		
				55	54		1
5	2	3		172	143	23	6
3	3			5	5		
42	4	36	2	1		1	
				53	52		1
63	45	1	17	308	228	8	72
1	1			559	532	20	7
1,918	1,362	241	315	1,217	505	686	26
4,199	3,333	187	679	4,973	4,867	83	23
9	9			71	61	9	1
84	84			465	462		3
411	285	67	59	187	144	35	8
223	165	55	3	1,279	1,249	6	24
3	3			15	14	1	
13			13	60			60
9,387	7,410	706	1,271	17,343	16,049	952	342
.....Totaux.							

TABLE III.—SUMMARY CONVICTIONS BY POLICE MAGISTRATES AND OTHER JUSTICES.

OFFENCES.	GRAND TOTALS— <i>Concluded.</i>							
	MANITOBA.				BRITISH COLUMBIA. — COLOMBIE-BRITANNIQUE.			
	Sentence.				Sentence.			
	Con- vic- tions Total	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	Con- vic- tions Total	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
	Con- dam- na- tions.	Sur- option	Emprison- nés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur- option	Emprison- nés sans option.	Re- mise, etc.
Adulteration of Food.....								
Assaults.....	58	58			70	65	5	
Breach of peace.....					13	12	1	
Carrying fire-arms and unlawful weapons.....					4	3	1	
Contempt of Court.....					6	5	1	
Cruelty to animals.....	2	2			7	7		
Disturbing religious and like meetings.....	5	5			1		1	
Fishery Acts, offences against.....								
Gambling Acts.....	1	1			69	68	1	
Game Laws.....					1	1		
Larceny.....					1	1		
“ of dogs, birds, &c.....								
“ of timber, trees, fruits, &c.....								
Liquor License Acts, offences against.....								
Breach of Canada Temperance Act.....								
Selling liquor during prohibited hours.....	8	8						
“ to Indians.....	1	1			142	48	94	
“ without license.....	2	2			5	4	1	
Malicious injury to property.....	8	8			2	2		
Other damage to property.....	2	2			11	11		
Master's and Servants Acts, offences against.....	61	61						
Medical Act, offences against.....								
Militia Acts.....								
Miscellaneous minor offences.....	2	2			2	2		
Municipal Acts and By-Laws, breaches of.....	33	32	1		119	119		
Exercising various callings without license.....	9	9			5	5		
Health By-laws, offences against.....	35	34	1		3	3		
Highways, offences relating to.....	17	17			8	8		
Neglecting to support family.....								
Pharmacy Acts, offences against.....	1	1			2	1	1	
Profanation of the Lord's Day.....	1	1						
Railway Acts, offences against.....					1	1		
Revenue Laws.....								
Seamen Acts.....					1		1	
Statute Labor, offences relating to.....								
Threats and abusive language.....	15	12		3	3	3		
Trespass.....								
Vagrancy.....	52	2	27	23	36	5	31	
Drunkenness.....	518	471	1	46	651	599	52	
Indecent exposure.....	1	1			1	1		
Insulting, obscene and profane language.....	2	2			8	8		
Keeping, frequenting bawdy houses and inmates thereof.....	51	51			34	33	1	
Loose, idle, disorderly.....	18	15		3	6	5	1	
Weights and Measures Acts, offences against.....	1	1						
Insanity.....					3			3
Totals.....	904	799	28	77	1,215	1,020	192	3

TABLEAU III.—CONDAMNATIONS SOMMAIRES PAR MAGISTRATS DE POLICE
ET AUTRES JUGES DE PAIX.

GRANDS TOTAUX.—Fin.							
THE TERRITORIES. — LES TERRITOIRES.				CANADA.			
Sentence.				Sentence.			
Con- vic- tions	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.	Con- vic- tions	Op- tion of a fine.	Com- mitted without option.	De- ferred &c.
Total	—	—	—	Total	—	—	—
Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.	Con- dam- na- tions.	Sur- option	Empri- sonnés sans option.	Re- mise, etc.
52	49	2	1	152	152	.....	.....
4	4	.....	.....	3,391	3,113	138	140
1	.....	1	.....	829	717	48	64
.....	.....	.....	.....	64	39	5	20
.....	.....	.....	.....	15	14	1	.....
.....	.....	.....	.....	354	346	.....	8
.....	.....	.....	.....	147	141	2	4
2	2	.....	.....	69	68	.....	1
1	1	.....	.....	126	125	1	.....
1	1	.....	.....	39	39	.....	.....
1	1	.....	.....	51	45	1	5
.....	.....	.....	.....	10	10	.....	.....
.....	.....	.....	.....	55	50	2	3
.....	.....	.....	.....	983	969	9	5
.....	.....	.....	.....	221	208	13	.....
.....	.....	.....	.....	382	382	.....	.....
5	2	3	.....	186	85	100	1
39	38	1	.....	537	523	13	1
8	6	2	.....	203	194	4	5
8	8	.....	.....	482	458	9	15
20	20	.....	.....	365	363	.....	2
.....	.....	.....	.....	29	29	.....	.....
.....	.....	.....	.....	2	2	.....	.....
1	1	.....	.....	29	25	4	.....
7	6	.....	1	3,073	3,029	5	39
1	1	.....	.....	169	167	2	.....
3	3	.....	.....	176	175	.....	1
.....	.....	.....	.....	359	351	.....	8
.....	.....	.....	.....	20	13	5	2
1	1	.....	.....	9	8	1	.....
8	8	.....	.....	88	87	.....	1
2	2	.....	.....	213	178	27	8
.....	.....	.....	.....	11	11	.....	.....
.....	.....	.....	.....	118	16	68	34
2	.....	.....	.....	53	52	.....	1
.....	.....	2	.....	469	354	9	106
13	2	10	1	560	533	20	7
82	78	3	1	3,335	1,886	1,077	372
4	4	.....	.....	12,997	11,807	418	772
.....	.....	.....	.....	93	82	10	1
.....	.....	.....	.....	578	574	1	3
12	12	.....	.....	716	540	109	67
1	1	.....	.....	1,598	1,497	68	33
.....	.....	.....	.....	19	18	1	.....
.....	.....	.....	.....	76	.....	.....	76
278	250	22	6	33,451	29,475	2,171	1,805
.....Totaux.							

TABLE IV.

SHOWING THE NUMBER OF CONVICTIONS AND THE NUMBER OF
INHABITANTS TO EACH CONVICTION FOR THE YEARS 1881 AND 1891.

TABLEAU IV.

INDIQUANT LE NOMBRE DE CONdamnATIONS ET LE NOMBRE
D'HABITANTS POUR CHAQUE CONdamnATION POUR LES ANNÉES
1881 ET 1891.

TABLE IV.—SHOWING THE NUMBER OF CONVICTIONS AND THE NUMBER OF INHABITANTS TO EACH CONVICTION FOR THE YEARS 1881 AND 1891.

OFFENCES.	Ontario.		Quebec.		Nova Scotia. Nouvelle-Ecosse.		New Brunswick. Nouv.-Brunswick	
	Population, 1881—1,923,228. 1891—2,114,321.		Population, 1881—1,359,027. 1891—1,488,535.		Population, 1881—440,572. 1891—450,396.		Population, 1881—321,233. 1891—321,263.	
	Num- ber of convic- tions.	Number of inhabi- tants to each con- viction.	Nombre de condam- nations.	Nombre d'habi- tants pour chaque condam- nation	Num- ber of convic- tions.	Nombre d'habi- tants to each con- viction.	Nombre de condam- nations.	Nombre d'habi- tants pour cha- que condam- nation.
Murder, attempts at and man- slaughter.	{ 1881 4 1891 7	480,807 302,046	7 4	194,147 372,134	3 2	146,857 225,198	..........	..........
Rape and other offences against females.	{ 1881 30 1891 39	64,107 54,213	12 47	113,252 31,671	1 6	440,572 75,066	2 2	160,616 106,631
Other offences against the per- son.	{ 1881 2,880 1891 2,569	668 823	743 1,266	1,829 1,176	237 232	1,859 1,941	235 285	1,367 1,127
Robbery with vio- lence, burglary, house and shop- breaking.	{ 1881 81 1891 154	23,743 13,729	45 79	30,200 18,842	2 14	220,286 32,171	9 3	35,692 107,087
Horse, cattle and sheep stealing.	{ 1881 28 1891 29	68,686 72,908	20 9	67,951 165,393	..... .....	..... .....	1	321,233
Other offences against proper- ty.	{ 1881 1,462 1891 1,802	1,315 1,173	705 1,074	1,927 1,386	155 109	2,842 4,132	79 91	4,066 3,530
Other felonies and misdemeanors.	{ 1881 183 1891 103	10,509 20,527	51 68	26,647 21,890	19 8	23,188 56,299	4 21	80,308 15,298
Breaches of muni- cipal by-laws and other minor offences.	{ 1881 7,204 1891 9,713	267 217	3,397 3,997	400 372	436 472	1,010 954	399 510	805 630
Drunkenness.	{ 1881 5,238 1891 4,973	367 425	1,400 4,199	937 354	737 635	598 709	1,130 1,629	284 197
Total convictions.	{ 1881 17,110 1891 19,389	112 109	6,430 10,743	211 138	1,590 1,478	277 305	1,859 2,540	172 126

TABLEAU IV.—INDIQUANT LE NOMBRE DE CONDAMNATIONS ET LE NOMBRE D'HABITANTS POUR CHAQUE CONDAMNATION, POUR LES ANNEES 1881 ET 1891.

Prince Edward Island. Ile du Prince-Edouard.		Manitoba.		British Columbia. Colombie-Britannique.		The Territories Les Territoires		Canada.		OFFENSES.
Population, 1881—108,891 1891—109,078.		Population, 1881—65,954 1891—152,505.		Population, 1881—49,459 1891—97,613.		Population, 1881—56,446 1891—98,967.		Population, 1881—4,324,810 1891—4,832,679.		
Number of convictions.	Number of inhabitants to each conviction	Nombre de condamnations.	Nombre d'habitants pour chaque condamnation.	Number of convictions.	Number of inhabitants to each conviction.	Nombre de condamnations.	Nombre d'habitants pour chaque condamnation.	Number of convictions.	Number of inhabitants to each conviction.	
				8	6,182			22	196,582	1881 } Meurtre et homicide non prémédité. 1891 }
				5	19,522	1	98,967	19	254,351	
6	18,179	1	65,954					46	94,018	1881 } Viol et autres outrages contre la femme. 1891 }
		1	152,506	4	24,403	2	49,483	107	45,165	
72	1,512	60	1,090	44	1,124	14	4,032	4,285	1,009	1881 } Outrages divers contre la personne. 1891 }
48	2,272	94	1,622	108	904	59	1,677	4,661	1,037	
		2	32,977	5	9,892			144	30,033	1881 } Vol avec violence et effraction, bris de maisons et de magasins. 1891 }
4	27,269	6	25,417	16	6,101	7	14,138	283	17,076	
		2	32,977			10	5,644	61	70,898	1881 } Vol de chevaux, bétail et moutons. 1891 }
		4	38,126			5	19,793	47	102,823	
29	3,755	40	1,649	40	1,236	22	2,565	2,532	1,708	1881 } Offenses diverses contre la propriété. 1891 }
14	7,791	69	2,210	81	1,205	66	1,499	3,306	1,461	
1	108,891	4	16,488	25	1,978	1	56,446	288	15,017	1881 } Autres crimes et délits. 1891 }
5	21,815	2	76,253	18	5,423	8	12,371	233	20,741	
164	664	420	157	104	475	148	381	12,272	352	1881 } Contraventions aux lois municipales et divers autres petits délits. 1891 }
167	653	303	503	477	205	123	805	15,762	307	
261	417	525	125	225	219	9	6,272	9,575	451	1881 } Ivresse. 1891 }
311	351	518	294	651	150	82	1,207	12,997	372	
527	206	1,054	62	451	109	204	276	29,225	148	1881 } Total des condamnations. 1891 }
555	196	997	153	1,360	71	353	280	37,415	129	

TABLE V.

SUMMARY CONVICTIONS AND CASES SUBJECT TO BE TRIED BY
JURY.

TABLEAU V.

CONDAMNATIONS SOMMAIRES ET CAUSES DE LA COMPÉTENCE
D'UN JURÉ.

TABLE V.—SUMMARY CONVICTIONS AND CASES SUBJECT TO TRIAL BY JURY.

JUDICIAL DISTRICTS. — DISTRICTS JUDICIAIRES.	Summary Con- victions. — Condam- nations sommaires	CASES SUBJECT TO BE TRIED BY JURY CON- CAUSES DE LA COMPÉTENCE D'UN JURÉ DE CONSEN-					
		By Police or other Magistrate. Par un Magistrat de Police ou autre.			Under the Speedy Trials Act. En vertu de l'Acte des procès expéditifs.		
		Con- victions.	Ac- quittals.	Totals.	Con- victions	Ac- quittals.	Totals.
		—	—	—	—	—	—
		Con- damna- tions.	Ac- quitte- ments.	Totaux.	Con- damna- tions.	Ac- quitte- ments.	Totaux.
PROVINCE OF ONTARIO.							
Algoma.....	231	12	11	23	13	1	14
Brant.....	568	74	22	96	14	15	29
Bruce.....	374	9	.....	9	9	7	16
Carleton.....	992	86	32	118	7	1	8
Dufferin.....	130	4	1	5	3	2	5
Elgin.....	245	17	2	19	12	6	18
Essex.....	390	33	3	36	21	8	29
Frontenac.....	412	38	.....	38	9	1	10
Grey.....	283	17	8	25	12	.....	12
Haldimand.....	165	4	.....	4	12	11	23
Halton.....	104	.....	.....	.....	18	.....	18
Hastings.....	546	44	33	77	12	2	14
Huron.....	129	.....	5	5	13	15	28
Kent.....	387	34	40	74	7	1	8
Lambton.....	484	.....	.....	.....	37	12	49
Lanark.....	133	.....	.....	.....	9	1	10
Leeds and Grenville.....	433	7	1	8	17	8	25
Lennox and Addington.....	161	4	.....	4	8	1	9
Lincoln.....	201	14	8	22	7	2	9
Middlesex.....	631	59	1	60	41	19	60
Norfolk.....	93	1	.....	1	11	8	19
Northumberland and Durham.....	422	41	8	49	6	8	14
Ontario.....	227	13	4	17	13	4	17
Oxford.....	476	9	1	10	4	.....	4
Peel.....	69	.....	.....	.....	9	4	13
Perth.....	*53	1	.....	1	8	.....	8
Peterborough.....	273	14	3	17	2	.....	2
Prescott and Russell.....	54	2	.....	2	2	.....	2
Prince Edward.....	47	3	.....	3	.....	.....	.....
Renfrew.....	211	5	1	6	17	1	18
Simcoe.....	458	9	.....	9	36	13	49
Stormont, Dundas and Glengarry.....	168	1	.....	1	8	.....	8
Thunder Bay.....	247	10	16	26	1	.....	1
Victoria.....	246	20	9	29	2	1	3
Waterloo.....	224	.....	.....	.....	21	13	34
Welland.....	287	33	48	81	3	3	6
Wellington.....	271	7	4	11	16	12	28
Wentworth.....	1,523	118	137	255	30	14	44
York.....	4,995	618	468	1,086	20	9	29
Totals of Ontario.....	17,343	1,361	866	2,227	490	203	693
Totaux d'Ontario.....							

* No return from the Police Magistrate of Stratford—Aucun rapport regus du magistrat de police de Stratford.

TABLEAU V.—CONDAMNATIONS SOMMAIRES ET CAUSES DE LA COMPÉTENCE D'UN JURÉ.

BUT TRIED SUMMARILY BY SENT.			CASES TRIED BY JURY.			INDICTABLE OFFENCES.		
MAIS JUGÉES SOMMAIREMENT.			CAUSES JUGÉES PAR JURÉ.			DÉLITS SUJETS À POURSUITE.		
Totals.								
Totaux.								
Con-victions.	Ac-quittals.	Totals.	Con-victions.	Ac-quittals.	Totals.	Con-victions.	Ac-quittals.	Totals.
—	—	—	—	—	—	—	—	—
Con-damna-tions.	Ac-quitte-ments.	Totaux.	Con-damna-tions.	Ac-quitte-ments.	Totaux.	Con-damna-tions.	Ac-quitte-ments.	Totaux.
PROVINCE D'ONTARIO.								
25	12	37	1	3	4	26	15	41
88	37	125	4	6	10	92	43	135
18	7	25	5	8	13	23	15	38
93	33	126	7	7	14	100	40	140
7	3	10	3	3	6	10	6	16
29	8	37	6	7	13	35	15	50
54	11	65	8	14	22	62	25	87
47	1	48	9	2	11	56	3	59
29	8	37	2	7	9	31	15	46
16	11	27	3		3	19	11	30
18		18		4	4	18	4	22
56	35	91	8	7	15	64	42	106
13	20	33	6	6	12	19	26	45
41	41	82	7	12	19	48	53	101
37	12	49	4	12	16	41	24	65
9	1	10				9	1	10
24	9	33	2	5	7	26	14	40
12	1	13				12	1	13
21	10	31	1	2	3	22	12	34
100	20	120	4	9	13	104	29	133
12	8	20	4	3	7	16	11	27
47	16	63	3	4	7	50	20	70
26	8	34	2	12	14	28	20	48
13	1	14	5	5	10	18	6	24
9	4	13		1	1	9	5	14
9		9	2		2	11		11
16	3	19	3	3	6	19	6	25
4		4	4	2	6	8	2	10
3		3	1		1	4		4
22	2	24	3	4	7	25	6	31
45	13	58	4	9	13	49	22	71
9		9	5	12	17	14	12	26
11	16	27	1		1	12	16	28
22	10	32	8	11	19	30	21	51
21	13	34	2	1	3	23	14	37
36	51	87	2	5	7	38	56	94
23	16	39	3	4	7	26	20	46
148	151	299	11	11	22	159	162	321
638	477	1,115	41	52	93	679	529	1,208
1,851	1,069	2,920	184	253	437	2,035	1,322	3,357

TABLE V.—SUMMARY CONVICTIONS AND CASES SUBJECT TO TRIAL BY JURY.

JUDICIAL DISTRICTS. DISTRICTS JUDICIAIRES	Summary Con- victions. Condam- nations sommaires	CASES SUBJECT TO BE TRIED BY JURY CON — CAUSES DE LA COMPÉTENCE D'UN JURÉ DE CONSEN					
		By Police or other Magistrate. — Par un Magistrat de Police ou autre.			Under the Speedy Trials Act. — En vertu de l'Acte des procès expéditifs.		
		Con- victions	Ac- quittals.	Totals.	Con- victions	Ac- quittals.	Totals.
		—	—	—	—	—	—
		Con- damna- tions.	Ac- quitte- ments.	Totaux.	Con- damna- tions.	Ac- quitte- ments.	Totaux.
PROVINCE OF QUEBEC.							
Arthabaska.....	39				8		8
Beauce.....					2		2
Beauharnois.....					12	3	15
Bedford.....	22				13	1	14
Bonaventure.....					6		6
Chicoutimi.....							
Gaspé.....	2	9		9			
Iberville.....					4		4
Joliette.....	18				9		9
Kamouraska.....	1				9		9
Montmagny.....	3				2		2
Montreal.....	7,326	835	190	1,025	146	13	159
Ottawa.....	130	1		1	1		1
Quebec.....	1,475	44	4	48	10	2	12
Richelieu.....	129	24	6	30	9	3	12
Rimouski.....	6	13	1	14			
Saguenay.....							
St. Francis.....	112	25	3	28	19	2	21
St. Hyacinthe.....	58	4		4	5	3	8
Terrebonne.....					15	19	34
Three Rivers.....	66	9	14	23	12		12
Totals of Quebec..... }	9,387	964	218	1,182	282	46	328
Totaux de Québec..... }							
PROVINCE OF NEW BRUNSWICK.							
Albert.....					1		1
Carleton.....	77	2		2	1	1	2
Charlotte.....	161				2		2
Gloucester.....	22				1	1	2
Kent.....	3						
King's.....	10	1		1			
Madawaska.....		2		2	2		2
Northumberland.....	128	19	1	20	2	1	3
Queen's.....							
Restigouche.....							
St. John.....	1,563	39	24	63			
Sunbury.....		1	1	2			
Victoria.....						1	1
Westmoreland.....	293	2	6	8	6	1	7
York.....	187	9		9	2	4	6
Totals of New Brunswick..... }	2,444	75	32	107	17	9	26
Totaux du N.-Brunswick..... }							

TABLEAU V.—CONDAMNATIONS SOMMAIRES ET CAUSES DE LA COMPÉTENCE D'UN JURE.

BUT TRIED SUMMARILY BY SENT. — MAIS JUGÉES SOMMAIREMENT.			CASES TRIED BY JURY. — CAUSES JUGÉES PAR JURE.			INDICTABLE OFFENCES. — DÉLITS SUJETS À POURSUITE.		
Totals. — Totaux.								
Con- victions.	Ac- quittals.	Totals.	Con- victions.	Ac- quittals.	Totals.	Con- victions.	Ac- quittals.	Totals.
— Con- damna- tions.	— Ac- quitte- ments.	— Totaux.	— Con- damna- tions.	— Ac- quitte- ments.	— Totaux.	— Con- damna- tions.	— Ac- quitte- ments.	— Totaux.

PROVINCE DE QUÉBEC.

8		8	1		1	9		9
2		2				2		2
12	3	15	4		4	16	3	19
13	1	14	1		1	14	1	15
6		6				6		6
			1		1	1		1
9		9				9		9
4		4				4		4
9		9	1		1	10		10
9		9				9		9
2		2				2		2
981	203	1,184	69	91	160	1,050	294	1,344
2		2		1	1	2	1	3
54	6	60	10	26	36	64	32	96
33	9	42	3	5	8	36	14	50
13	1	14				13	1	14
44	5	49	6		6	50	5	55
9	3	12	1	2	3	10	5	15
15	19	34	8	6	14	23	25	48
21	14	35	5	10	15	26	24	50
1,246	264	1,510	110	141	251	1,356	405	1,761

PROVINCE DU NOUVEAU-BRUNSWICK.

1		1				1		1
3	1	4				3	1	4
2		2				2		2
1	1	2				1	1	2
1		1				1		1
4		4	1	1	2	5	1	6
21	2	23				21	2	23
			3		3	3		3
39	24	63	1		1	40	24	64
1	1	2				1	1	2
	1	1					1	1
8	7	15	1		1	9	7	16
11	4	15				11	4	15
92	41	133	6	1	7	98	42	140

TABLE V.—SUMMARY CONVICTIONS AND CASES SUBJECT TO TRIAL BY JURY.

JUDICIAL DISTRICTS. — DISTRICTS JUDICIAIRES.	Summary Con- victions.	CASES SUBJECT TO BE TRIED BY JURY CON CAUSES DE LA COMPÉTENCE D'UN JURÉ CONSEN					
		By Police or other Magistrate. — Par un Magistrat de Police ou autre.			Under the Speedy Trials Act. — En vertu de l'Acte des procès expéditifs.		
		Con- victions.	Ac- quittals.	Totals.	Con- victions.	Ac- quittals.	Totals.
	Condam- nations sommaires	Con- damna- tions.	Ac- quitte- ments.	Totaux.	Con- damna- tions.	Ac- quitte- ments.	Totaux.
PROVINCE OF NOVA SCOTIA.							
Annapolis.....	7				2		2
Antigonish.....		1		1			
Cape Breton.....	68	2		2	3		3
Colchester.....	14				10	2	12
Cumberland.....	96	2	3	5	12	6	18
Digby.....	39				2		2
Guysborough.....	5						
Halifax.....	801	33	18	51	15	7	22
Hants.....	25				2	8	10
Inverness.....	4				2		2
King's.....	39				5	3	8
Lunenburg.....	69	3		3			
Pictou.....	113				7		7
Queen's.....					4	1	5
Richmond.....							
Shelburne.....	4						
Victoria.....					1		1
Yarmouth.....	70	2	1	3			
Totals of Nova Scotia..... } Totaux de la Nouv.-Ecosse. }	1,354	43	22	65	64	28	92
King's, P.E.I.—I. du P.-E.....	20						
Prince, P.E.I.—I. du P.-E.....	88						
Queen's, P.E.I.—I. du P.-E.....	418	18	12	30			
Totals of P.E. Island..... } Totaux de l'Île du P.-E. }	526	18	12	30			
Central Manitoba—Centre.....	2	6	7	13	3	3	6
Eastern Manitoba—Est.....	871	44	54	78	25	3	28
Western Manitoba—Ouest.....	31	2	2	4	6		6
Totals of Manitoba..... } Totaux de Manitoba..... }	904	52	43	95	34	6	40
Cariboo, B.C.—C.-B.....					3		3
Clinton, B.C.—C.-B.....	18						
New Westminster, B.C.—C.-B.....	389	35	1	36	14	6	20
Victoria, B.C.—C.-B.....	808	37		37	13	4	17
Totals of British Columbia..... } Totaux de la Col.-Britannique }	1,215	72	1	73	30	10	40
The Territories..... } Les Territoires..... }	278	16	6	22			
Totals of Canada..... } Totaux du Canada..... }	33,451	2,601	1,200	3,801	917	302	1,219

TABLEAU V.—CONdamnATIONS SOMMAIRES ET CAUSES DE LA COMPÉTENCE D'UN JURÉ.								
BUT TRIED SUMMARILY BY SENT. — MAIS JUGÉES SOMMAIREMENT.			CASES TRIED BY JURY. — CAUSES JUGÉES PAR JURÉ.			INDICTABLE OFFENCES. — DÉLITS SUJETS A POURSUITE.		
Totals. — Totaux.								
Con-victions. — Con-damna-tions.	Ac-quittals. — Ac-quitte-ments.	Totals. — Totaux.	Con-victions. — Con-damna-tions.	Ac-quittals. — Ac-quitte-ments.	Totals. — Totaux.	Con-victions. — Con-damna-tions.	Ac-quittals. — Ac-quitte-ments.	Totals. — Totaux.
PROVINCE DE LA NOUVELLE-ÉCOSSE.								
2		2	1	1	2	3	1	4
1		1	1		1	2		2
5		5				5		5
10	2	12				10	2	12
14	9	23				14	9	23
2		2	2	1	3	4	1	5
48	25	73	3	3	6	51	28	79
2	8	10	1	4	5	3	12	15
2		2	1	2	3	3	2	5
5	3	8		2	2	5	5	10
3		3	2		2	5		5
7		7				7		7
4	1	5		1	1	4	2	6
			1	4	5	1	4	5
	1	1		1	1		2	2
2	1	3	5		5	7	1	8
107	50	157	17	19	36	124	69	193
18	12	30	11		11	29	12	41
18	12	30	11		11	29	12	41
9	10	19	2	1	3	11	11	22
69	37	106	2	6	8	71	43	114
8	2	10	3		3	11	2	13
86	49	135	7	7	14	93	56	149
3		3				3		3
			22	8	30	22	8	30
49	7	56	9	5	14	58	12	70
50	4	54	12	5	17	62	9	71
102	11	113	43	18	61	145	29	174
16	6	22	59	22	81	75	28	103
3,518	1,502	5,020	437	461	898	3,955	1,963	5,918

TABLE VI.

NUMBER OF SUMMARY CONVICTIONS WITH RATIOS FOR CITIES
AND TOWNS.

TABLEAU VI.

NOMBRE DE CONDAMNATIONS SOMMAIRES AVEC PROPORTIONS
POUR LES VILLES.

TABLE VI.—NUMBER OF SUMMARY CONVICTIONS WITH RATIOS FOR CITIES AND TOWNS.

TABLEAU VI.—NOMBRE DE CONdamnATIONS SOMMAIRES AVEC PROPORTIONS POUR LES VILLES.

CITIES AND TOWNS. — VILLES.	Municipal Population Municipale.	Summary Con- victions. — Jugements som- maires.	Cases tried under the “Summary Trial and Juvenile Offenders’ Acts.” — Causes jugées en vertu des Actes des procès sommaires et des jeunes délinquants.	Offences Total Délits.	Ratio to 1,000 of the population. — Proportion par 1,000 de la population.
Montreal, Que.....	216,650	7,343	1,019	8,362	38·59
Toronto, Ont.....	181,220	4,567	1,089	5,656	31·21
Quebec.....	63,090	1,406	49	1,455	23·06
Hamilton, Ont.....	48,980	1,354	255	1,609	32·85
Ottawa, Ont.....	44,154	914	118	1,032	23·37
St. John, N.B.....	39,179	1,563	63	1,626	41·50
Halifax, N.S.....	38,556	737	51	788	20·24
London, Ont.....	31,997	384	51	435	13·59
Winnipeg, Man.....	25,642	871	80	951	37·09
Kingston, Ont.....	19,264	351	37	388	20·14
Victoria, B.C.—Col.-B....	16,841	835	38	873	51·83
Brantford, Ont.....	12,753	400	94	494	38·73
Charlottetown, P.E.I.—I. du P.-E.	11,374	390	30	420	36·92
Hull, Que.....	11,265	130	1	131	11·62
Guelph, Ont.....	10,539	82	5	87	8·25
St. Thomas, Ont.....	10,370	155	15	170	16·39
Windsor, Ont.....	10,322	221	30	251	24·31
Sherbrooke, Que.....	10,110	112	28	140	13·84
Belleville, Ont.....	9,914	256	55	311	31·37
Peterborough, Ont.....	9,717	191	17	208	21·40
Ste. Catharines, Ont.....	9,170	105	22	127	13·85
Chatham, Ont.....	9,052	213	67	280	30·93
Brockville, Ont.....	8,793	201	6	207	23·54
Moncton, N.B.....	8,765	287	2	289	32·97
Woodstock, Ont.....	8,612	188	2	190	22·06
Three Rivers, Que.....	8,334	64	46	110	13·19
Owen Sound, Ont.....	7,497	102	23	125	16·67
Lévis, Que.....	7,301	71	.....	71	9·72
St. Hyacinthe, Que.....	7,016	58	4	62	8·83
Cornwall, Ont.....	6,805	99	1	100	14·69
Sorel, Que.....	6,669	128	28	156	23·39
New Westminster, B.C.—Col.-B....	6,641	306	32	338	50·89
Fredericton, N.B.....	6,502	187	9	196	30·14
Dartmouth, N.S.—N.-E.....	6,249	74	3	77	12·32
Yarmouth, N.S.—N.-E.....	6,089	70	3	73	11·99
Lindsay, Ont.....	6,081	98	26	124	20·39
Barrie, Ont.....	5,550	134	15	149	26·84
Port Hope, Ont.....	5,042	108	34	142	28·16
Cobourg, Ont.....	4,829	101	14	115	23·81
Pembroke, Ont.....	4,401	42	5	47	10·68
Trenton, Ont.....	4,364	91	18	109	24·99
Ingersoll, Ont.....	4,191	225	9	234	54·88
Lunenburg, N.S.—N.-E.....	4,044	35	3	38	9·39
Amherst, N.S.—N.-E.....	3,781	96	5	101	26·71
New Glasgow, N.S.—N.-E.....	3,777	51	.....	51	13·50
Napanee, Ont.....	3,434	103	4	107	31·16
Bowmanville, Ont.....	3,377	45	2	47	13·91
Niagara Falls.....	3,349	71	70	141	42·10
Strathroy, Ont.....	3,316	62	3	65	19·60
Woodstock, N.B.....	3,290	77	3	80	24·31
Pictou, N.S.—N.-E.....	3,287	62	.....	62	18·86
Walkerton, Ont.....	3,061	78	8	86	28·09
Summerside, P.E.I.—I. du P.-E....	2,883	74	.....	74	25·66
Windsor, N.S.—N.-E.....	2,838	25	.....	25	8·81
North Sydney, N.S.—N.-E.....	2,513	68	2	70	27·85

* No return from the Police Magistrate of Stratford—Aucun rapport reçu du magistrat de police de Stratford.

TABLE VII.

PARDONS AND COMMUTATIONS.

TABLEAU VII.

PARDONS ET COMMUTATIONS.

TABLE VII—Cases in which the Prerogative of Mercy has been exercised during the year ended the 30th September, 1891, in favour of Prisoners committed to the following Prisons.

(Province of Ontario.)		PROVINCIAL PENITENTIARY—KINGSTON.					
CRIME.	Sen- tence.	DATE OF		Conditions upon which Pardon or Commutation was granted.	Age and Sex.		By what Court tried.
		Sentence or Committal.	Pardon or Commuta- tion.		M	F	
Murder	a Life	Oct. 23, '82	Oct. 26, '90	*	71		Assize, Chatham, Ont.
"	a "	Dec. 6, '83	Feb. 2, '91	When he shall have served 10 yrs with remission	46		" Sandwich, Ont.
Manslaughter.....	"	Oct. 14, '81	Mar. 2, '91	*	33		" Peterborough, O
"	15 yrs.	" 2, '86	" 24, '91	*	26		" Barrie, Ont.
Rape	Life.	Nov. 11, '85	Apr. 4, '91	*	23		" Ottawa, Ont.
"	"	" 11, '85	" 4, '91	*	27		" "
"	"	" 11, '85	" 4, '91	Sentence reduced to 7 years.	30		" "
"	7 yrs.	Apr. 25, '91	July 13, '91	*	31		" Toronto, Ont.
Arson	15 "	Sept. 21, '82	Feb. 2, '91	*	46		Police, Niagara Falls, O
"	14 "	Jan. 25, '86	July 27, '91	Insane	27		" Kingston, Ont.
Robbery	10 "	Apr. 8, '84	Apr. 23, '91	*	38		Assize, Simcoe, Ont.
Breaking gaol.....	7 "	Mar. 9, '88	July 28, '91	*	21		County, Dorchester, N.B
Shopbreaking and lar- ceny	7 "	Jan. 23, '89	" 25, '91	*	25		" Berlin, Ont.
Stealing money letters	7 "	Feb. 7, '87	Feb. 2, '91	*	31		Police, Toronto, Ont.
Uttering forged paper.	5 "	Apr. 13, '88	Mar. 30, '91	Remission of 3 m's.	34		Assize, Chatham, Ont.
Forgery	4 "	" 25, '89	Aug. 12, '91	*	22		" Peterborough, O
Burglary	3 "	Aug. 25, '89	July 28, '91	When he shall have served 2 years with remission	24		Police, Cornwall, Ont.
Horse stealing.....	3 "	Apr. 14, '90	Jan. 5, '91	*	19		County, Whitby, Ont.
Larceny	6 "	Jan. 14, '91	Aug. 31, '91	*	17		" Annapolis, N.S.
"	4 "	June 30, '88	May 19, '91	*	25		Assize, Toronto, Ont.
"	3 1/2 "	Oct. 29, '89	Nov. 4, '90	When he shall have served 2 years.	22		County, Walkerton, Ont.
"	3 "	July 17, '89	July 28, '91	*	25		Police, Toronto, Ont.

(Province of Ontario.)		PROVINCIAL REFORMATORY—PENETANGUISHENE.					
Indecent assault.....	b2 yrs.	May 10, '89	May 16, '91	*	18		County, Cornwall, Ont.
Shopbreaking and lar- ceny	3 "	June 17, '89	Nov. 4, '90	*	15		Police, Toronto, Ont.
Larceny	4 "	Sept. 5, '87	Mar. 19, '91	*	21		County, Hamilton, Ont.
"	c3 "	July 3, '88	Dec. 22, '90	*	20		Police, London, Ont.
"	3 "	Sept. 2, '89	Apr. 28, '91	*	16		" Hamilton, Ont.
"	3 "	" 23, '89	July 28, '91	*	15		" Chatham, Ont.
"	3 "	June 21, '89	Aug. 5, '91	*	15		" Toronto, Ont.
"	3 "	Jan. 29, '90	" 12, '91	*	17		" "
"	3 "	Oct. 9, '89	" 21, '91	*	16		" Brantford, Ont.
"	3 "	" 30, '90	" 31, '91	*	17		County, Toronto, Ont.
"	b2 "	Dec. 20, '89	May 19, '91	*	17		" London, Ont.
"	b1 "	May 23, '90	June 25, '91	*	19		" Toronto, Ont.
"	b1 "	Jan. 2, '90	July 8, '91	*	17		Gen. Sess., "
"	b1 "	May 30, '90	Aug. 5, '91	*	15		" "
"	1/6 m's.	Dec. 31, '90	July 28, '91	*	16		Police, London, Ont.
"	b3 "	Aug. 4, '87	Feb. 13, '91	*	16		" Cornwall, Ont.
"	d.	Feb. 24, '90	June 20, '91	*	16		County, Pembroke, O.

a Death sentence previously commuted.

b And an indefinite period not to exceed 5 years.

C “ “ “

d Indefinite period.

* No reason given for pardon or commutation.

TABLEAU VII—Cas où le droit de grâce a été exercé durant l'année finissant le 30 septembre 1891, en faveur des prisonniers envoyés aux prisons suivantes.

(Province d'Ontario.)

PÉNITENCIER PROVINCIAL—KINGSTON.

CRIME.	Sen- tence.	DATE DE		Conditions sur lesquelles le pardon ou commutation a été accordé.	Age et sexe.	Par quelle cour mis en jugement.
		Sentence ou emprison- nement.	Pardon ou commuta- tion.			
					H F	
Meurtre.....	a Vie	23 oct. '82	26 oct. '90	*	71 ..	Assises, Chatham, Ont.
"	a "	6 déc. '83	2 fév. '91	A être libéré après avoir servi 10 ans avec remission.....	46 ..	" " Sandwich "
Homicide non prém..	"	14 oct. '81	2 mars '91	*	33 ..	" " Peterborough, O
"	15 ans.	2 " '86	24 " '91	*	26 ..	" " Barrie, Ont.
Viol.....	A vie.	11 nov. '85	4 avril '91	*	23 ..	" " Ottawa, Ont.
"	"	11 " '85	4 " '91	*	27 ..	" " "
"	"	11 " '85	4 " '91	Sentence réduite à 7 ans.....	30 ..	" " "
"	7 ans.	25 avril '91	13 juill. '91	*	31 ..	" " Toronto, Ont.
Incendie.....	15 "	21 sept. '82	2 fév. '91	*	46 ..	Police, Niagara Falls, O
"	14 "	25 janv. '86	27 juill. '91	Aliéné.....	27 ..	" " Kingston, Ont.
Vol.....	10 "	8 avril '84	23 avril '91	*	38 ..	Assises, Simcoe, Ont.
Bris de prison.....	7 "	9 mars '88	28 juill. '91	*	21 ..	Comté, Dorchester, N.B
Bris de magasin et larcin.....	7 "	23 janv. '89	25 " '91	*	25 ..	" " Berlin, Ont.
Vol de lettres d'argent	7 "	7 fév. '87	2 fév. '91	*	31 ..	Police, Toronto, Ont.
Circul. de faux papiers	5 "	13 avril '88	30 mars '91	3 mois remis.....	34 ..	Assises, Chatham, Ont.
Faux.....	4 "	25 " '89	12 août '91	*	22 ..	" " Peterborough, O
Vol de nuit.....	3 "	25 août '89	28 juill. '91	A être libéré après avoir servi 2 ans avec remission.....	24 ..	Police, Cornwall, Ont.
Vol de chevaux.....	3 "	14 avril '90	5 janv. '91	*	19 ..	Comté, Whitby, Ont.
Larcin.....	6 "	14 janv. '91	31 août '91	*	17 ..	" " Annapolis, N.-E
"	4 "	30 juin '88	19 mai '91	*	25 ..	Assises, Toronto, Ont.
"	3½ "	29 oct. '89	4 nov. '90	A être libéré après avoir servi 2 ans..	22 ..	Comté, Walkerton, Ont.
"	3 "	17 juill. '89	28 juill. '91	*	25 ..	Police, Toronto, Ont.

(Province d'Ontario.)

ÉCOLE DE RÉFORME—PÉNÉTANGUISHENE.

Attentat à la pudeur..	b2 ans.	10 mai '89	16 mai '91	*	18 ..	Comté, Cornwall, Ont.
Bris de magasin et larcin.....	3 "	17 juin '89	4 nov. '90	*	15 ..	Police, Toronto, Ont.
Larcin.....	4 "	5 sept. '87	19 mars '91	*	21 ..	Comté, Hamilton, Ont.
"	c3 "	3 juill. '88	22 déc. '90	*	15 ..	Police, London, Ont.
"	3 "	2 sept. '89	28 avril '91	*	16 ..	" " Hamilton, Ont.
"	3 "	23 " '89	28 juill. '91	*	15 ..	" " Chatham, Ont.
"	3 "	21 juin '89	5 août '91	*	15 ..	" " Toronto, Ont.
"	3 "	29 janv. '90	12 " '91	*	17 ..	" " "
"	3 "	9 oct. '89	21 " '91	*	16 ..	" " Brantford, Ont.
"	3 "	30 " '90	31 " '91	*	17 ..	Comté, Toronto, Ont.
"	b2 "	20 déc. '89	19 mai '91	*	17 ..	" " London, Ont.
"	b1 "	23 mai '90	25 juin '91	*	19 ..	" " Toronto, Ont.
"	b1 "	2 juin '90	8 juill. '91	*	17 ..	Sessions, " "
"	b1 "	30 mai '90	5 août '91	*	15 ..	" " "
"	b6 m's.	31 déc. '90	28 juill. '91	*	16 ..	Police, London, Ont.
"	b3 "	4 août '87	13 fév. '91	*	16 ..	" " Cornwall, Ont.
"	d	24 fév. '90	20 juin '91	*	16 ..	Comté, Pembroke, O.

a La sentence de mort ayant été antérieurement commuée.

b Et une période indéfinie ne devant pas excéder 5 ans.

c

d Période indéfinie.

* Aucune raison donnée pour les pardons ou commutations.

TABLE VII—Cases in which the Prerogative of Mercy has been exercised during the Year ended the 30th September, 1891, in favour of Prisoners committed to the following Prisons.

(Province of Ontario.) PROVINCIAL REFORMATORY—PENETANGUISHENE—Concluded.

CRIME.	Sen- tence.	DATE OF		Conditions upon which Pardon or Commutation was granted.	Age and Sex.		By what Court tried.
		Sentence or Committal.	Pardon or Commuta- tion.		M	F	
Larceny.....	a	Dec. 13, '87	July 25, '91	*	18		Gen. Sess., Simcoe, Ont.
Receiving stolen goods	b 1 yr.	June 5, '88	Dec. 29, '90	*	18		County, Guelph, Ont.
Stealing horse and rig.	4 yrs.	May 2, '88	May 28, '91	*	18		Police, Hamilton, Ont.
Vagrancy.....	c 5 m's.	Nov. 7, '88	Dec. 13, '90	*	15		" London, Ont.
"	d 5 "	Dec. 27, '88	Feb. 2, '91	*	18		" "
"	d 5 "	Jan. 3, '89	" 13, '91	*	17		" "
Incorrigible.....	3 "	Sept. 4, '89	Aug. 31, '91	*	14		" Hamilton, Ont.
"	e	Oct. 23, '89	Apr. 4, '91	*	13		" Owen Sound, O.
" conduct.....	e	July 3, '88	Aug. 21, '91	*	16		" London, Ont.

(Province of Ontario.) MERCER REFORMATORY—TORONTO.

Vagrancy.....	5 yrs.	Aug. 6, '90	Feb. 2, '91	*	18		Police, Hamilton, Ont.
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ONTARIO BOYS' REFORMATORY.

Shopbreaking and lar- ceny.....	3 yrs.	Dec. 13, '87	Dec. 1, '90	*	19		Police, St. Catharines, O.
Vagrancy.....	e 6 m's	Aug. 9, '89	" 1, '90	*	14		" Kingston, Ont.

(Province of Ontario.) CENTRAL PRISON—TORONTO.

Shopbreaking and lar- ceny.....	14 m's.	Mar. 7, '90	Feb. 18, '91	When they shall	20		Police, Owen Sound, O.
Larceny.....	14 "	" 7, '90	" 18, '91	f have served 1 year	35		" "
Larceny.....	1 year & 364 days.	Sept. 13, '90	July 25, '91	*	26		" Niagara Falls, O.
"	23 m's.	Apr. 2, '90	" 28, '91	*	30		Assize, Owen Sound, O.
"	18 "	Feb. 8, '90	May 2, '91	Remission of 3 m's.	17		Police, Ottawa, Ont.
"	18 "	June 23, '90	" 16, '91	*	37		County, Waterloo, Ont.
"	18 "	Apr. 1, '91	July 6, '91	*	9		Police, Hamilton, Ont.
"	12 "	Dec. 4, '90	June 2, '91	*	37		" Niagara Falls, O.
Receiving stolen goods	12 "	" 16, '90	May 1, '91	*	21		Session, Toronto, Ont.

(Province of Ontario.) COMMON JAILS.

Assault.....	1 year.	Aug. 22, '91	Sept. 30, '91	*	50		Police, Gananoque, Ont.
Larceny.....	1 year & 364 days.	Mar. 7, '91	Apr. 13, '91	*	23		" Niagara Falls, O.
"	5 m's.	Nov. 20, '90	Feb. 2, '91	*	34		Gen. Sess., Muskoka, O.
"	40 d's	July 31, '91	Aug. 6, '91	*	23		Police, Toronto, Ont.
Vagrancy.....	6 m's.	Sept. 12, '90	Oct. 28, '90	*	13		" Prescott, Ont.
"	6 "	Nov. 21, '90	Mar. 19, '91	*	47		J. of P.'s, Perth, Ont.

a Indefinite period.

b And an indefinite period not to exceed 3 years in all.

c "

d " not to exceed 5 years.

e Indefinite period not to exceed 5 years.

f And an indefinite period not to exceed 4 years and 6 months.

* No reason given for pardon or commutation.

TABLEAU VII.—Cas où le droit de grâce a été exercé durant l'année finissant le 30 septembre 1891, en faveur des prisonniers envoyés aux prisons suivantes.

(Province d'Ontario.) ÉCOLE DE RÉFORME—PÉNÉTANGUISHENE—Fin.									
CRIME.	Sen- tence.	DATE DE		Conditions sur lesquelles le pardon ou commutation a été accordé.	Age et sexe.		Par quelle cour mis en jugement.		
		Sentence ou emprison- nement.	Pardon ou commuta- tion.		H	F			
Larcin.....	a	13 déc. '87	25 juill. '91	*	18 ..	Sessions,	Simcoe, Ont.		
Recel	b/an..	5 juin '88	29 déc. '90	*	18 ..	Comté,	Guelph, Ont.		
Vol de cheval et voit're.	c/ans.	2 mai '88	28 mai '91	*	18 ..	Police,	Hamilton, Ont.		
Vagabondage.....	d/m's.	7 nov. '88	13 déc. '90	*	15 ..	"	London, Ont.		
"	e/d5 "	27 déc. '88	2 fév. '91	*	18 ..	"	"		
"	f/d5 "	3 janv. '89	13 " '91	*	17 ..	"	"		
Incorrigible	g "	4 sept. '89	31 août '91	*	14 ..	"	Hamilton, Ont.		
"	h	23 oct. '89	4 avril '91	*	13 ..	"	Owen Sound, O.		
Conduite incorrigible.	i	3 juill. '88	21 août '91	*	16 ..	"	London, Ont.		
(Province d'Ontario.) MAISON DE RÉFORME MERCER—TORONTO.									
Vagabondage.....	j 5 ans	6 août '90	2 fév. '91	*	18 ..	Police,	Hamilton, Ont.		
MAISON DE RÉFORME D'ONTARIO POUR LES GARÇONS.									
Bris de magasin et larcin.....	k 3 ans	13 déc. '87	1 déc. '90	*	19 ..	Police,	Ste.Catherine, O		
Vagabondage.....	l/f6 m's	9 août '89	1 " '90	*	14 ..	"	Kingston, Ont.		
(Province d'Ontario.) PRISON CENTRALE—TORONTO.									
Bris de magasin et larcin.....	m/14 m's	7 mars '90	18 fév. '91	A être libérés après qu'ils aur.serv.1an	20 ..	Police,	Owen Sound, O.		
Larcin.....	n/1 an et 364 jours.	7 " '90	18 " '91		35 ..	"	"		
"	o/23m's.	13 sept. '90	25 juill. '91	*	26 ..	"	Niagara Falls, O		
"	p/18 "	2 avril '90	28 " '91	*	30 ..	Assises,	Owen Sound, O.		
"	q/18 "	8 fév. '90	2 mai '91	3 mois remis.	17 ..	Police,	Ottawa, Ont.		
"	r/18 "	23 juin '90	16 " '91	*	37 ..	Comté,	Waterloo, Ont.		
"	s/18 "	1 avril '91	6 juill. '91	*	9 ..	Police,	Hamilton, Ont.		
"	t/12 "	4 déc. '90	2 juin '91	*	37 ..	"	Niagara Falls, O		
Recel.....	u/12 "	16 " '90	1 mai '91	*	21 ..	Sessions,	Toronto, Ont.		
(Province d'Ontario.) PRISONS COMMUNES.									
Voies de fait.....	v/1 an..	22 août '91	30 sept. '91	*	50 ..	Police,	Gananoque, O.		
Larcin	w/1 an et 364 jours.	7 mars '91	13 avril '91	*	23 ..	"	Niagara Falls, O		
"	x/5m's.	20 nov. '90	2 fév. '91	*	34 ..	Sessions,	Muskoka, Ont.		
"	y/40 jrs.	31 juill. '91	6 août '91	*	23 ..	Police,	Toronto, Ont.		
Vagabondage.....	z/6m's.	13 sept. '90	28 oct. '90	*	13 ..	"	Prescott, Ont.		
"	aa/6 "	21 nov. '90	19 mars '91	*	47 ..	J. de P.	Perth, Ont.		
a Période indéfinie. b Et une période indéfinie ne devant pas excéder 3 ans en tout. c " " " d " " " ne devant pas excéder 5 ans. e Période indéfinie ne devant pas excéder 5 ans. f Et une période indéfinie ne devant pas excéder 4 ans et 6 mois. * Aucune raison donnée pour les pardons ou commutations.									

TABLE VII.—Cases in which the Prerogative of Mercy has been exercised during the year ended the 30th September, 1891, in favour of Prisoners committed to the following Prisons.

(Province of Ontario.)		COMMON JAILS—Concluded.				
CRIME.	Sen- tence.	DATE OF		Conditions upon which Pardon or Commutation was granted.	Age and Sex. M F	By what Court tried.
		Sentence or Committal.	Pardon or Commuta- tion.			
Vagrancy	4m's.	Jan. 26, '91	Apr. 6, '91	*	43	Police, Gananoque, O.
"	3 "	" 22, '91	Feb. 19, '91	*	58	" Cobourg, Ont.
"	"	June 22, '90	June 2, '91	*	10	County, Berlin.
Drunkenness	1mo.	Nov. 17, '90	Nov. 25, '90	*	50	Police, Strathroy, Ont.
"	1 "	" 17, '90	" 25, '90	*	40	" "
(Province of Ontario.) NOT IMPRISONED.						
Giving liquor to an Indian	b.	Apr. 24, '91	Sep. 29, '91	*		J. P., Bruce Co.
Neglecting to comply with provision of section 101, c. 178, R. S. C.	c.	Oct. 6, '90	Dec. 29, '90	Remission of moiety of fine payable to Her Majesty the Queen		Queen's B., Cobourg, O.
(Province of Quebec.) PROVINCIAL PENITENTIARY—ST. VINCENT DE PAUL.						
Manslaughter	14 yrs.	Jan. 20, '87	Dec. 1, '90	*	70	" Aylmer, Que
Burglary	14 "	Mar. 12, '87	May 28, '91	When he shall have served 5 years with remission	24	" Montreal "
Stealing money out of a post letter	5 "	Apr. 19, '88	Aug. 5, '91	*	21	Sessions, Terrebonne "
Shooting with intent to do grievous bodily harm	5 "	Nov. 24, '88	Jan. 5, '91	Remission of 1 year with remission.	38	Queen's B., Beauce, Que.
Assault with intent to steal	3 "	Mar. 16, '89	Nov. 1, '91	*	24	" Montreal "
Larceny	5 "	Oct. 27, '88	May 16, '91	*	26	" Arthabaska, Q.
"	4 "	Aug. 2, '89	" 19, '91	*	19	Police, Montreal, Que.
"	3 "	Mar. 23, '89	Jan. 31, '91	*	29	Queen's B., Montreal, Q.
"	3 "	Feb. 22, '90	July 29, '91	*	20	Sessions, Montreal, Que.
Horse stealing	3 "	June 11, '91	" 16, '91	*	19	District Magistrate, Arthabaska, Q.
(Province of Quebec.) COMMON JAILS.						
Felonious assault	3m's.	Nov. 18, '90	Dec. 29, '90	*	34	District Magist., Three Rivers, Que.
"	3 "	" 18, '90	" 29, '90	*	37	District Magist., Three Rivers, Que.

a Sentence to the industrial school until 17 years of age, then released.
b Fine of \$50. c Fine of \$160 and costs.
* No reason given for pardon or commutation.

TABLEAU VII—Cas où le droit de grâce a été exercé durant l'année finissant le 30 septembre 1891, en faveur des prisonniers envoyés aux prisons suivantes.

(Province d'Ontario.) PRISONS COMMUNES—Fin.						
CRIME.	Sen- tence.	DATE DE		Conditions sur lesquelles le pardon ou commutation a été accordé.	Age et sexe. H F	Par quelle cour mis en jugement.
		Sentence ou emprison- nement.	Pardon ou commuta- tion.			
Vagabondage.....	4 m's.	26 janv. '91	6 avril '91	*	43 ..	Police, Gananoque, O.
“	3 “	22 “ ‘91	19 fév. ‘91	*	58 ..	“ Cobourg, Ont.
“	a	22 juin ‘90	2 juin ‘91	*	10 ..	Comté, Berlin, Ont.
Ivresse	1 m's.	17 nov. ‘90	25 nov. ‘90	*	50 ..	Police, Strathroy, Ont.
“	1 “	17 “ ‘90	25 “ ‘90	*	40 ..	“ “
(Province d'Ontario.) NON EMPRISONNÉS.						
Donnant de la boisson à un sauvage.....	b	24 avril '91	29 sept. '91	*		J. de P., Comté de Bruce.
Négligence de se con- former à la clause de la section 101, c. 178, Statuts R.C.....	c	6 oct. ‘90	29 déc. ‘90	La moitié de l'amende payable à sa Majesté la Reine, remise.....		B. Reine, Cobourg, Ont.
(Province de Québec.) PÉNITENCIER PROVINCIAL—ST. VINCENT DE PAUL.						
Homicide non prém..	14 ans.	20 janv. '87	1 déc. '90	*	70 ..	“ Aylmer, Que.
Vol de nuit.....	14 “	12 mars '87	28 mai '91	A servir 5 ans avec rémission.....	24 ..	“ Montréal “
Vol d'argent contenu dans une lettre.	5 “	19 avril '88	5 août '91	*	21 ..	Sessions, Terrebonne, Q.
Usage d'armes à feu avec intention de blesser	5 “	24 nov. '88	5 janv. '91	1 an remis plus ré- mission.....	38 ..	B. Reine, Beauce, Qué.
Voies de fait avec in- tention de voler....	3 “	16 mars '89	1 nov. '91	*	24 ..	“ Montréal “
Larcin.....	5 “	27 oct. '88	16 mai '91	*	26 ..	“ Arthabaska, Q.
“	4 “	2 août '89	19 “ ‘91	*	19 ..	Police, Montréal, Qué.
“	3 “	23 mars '89	31 janv. '91	*	29 ..	B. Reine “
“	3 “	22 fév. '90	29 juill. '91	*	20 ..	Sessions “
Vol de chevaux.....	3 “	11 juin '91	16 “ ‘91	*	19 ..	Magistrat du District Arthabaska, Qué.
(Province de Québec.) PRISONS COMMUNES.						
Voies de fait graves..	3 m's.	18 nov. '90	29 déc. '90	*	34 ..	Magistrat du District Trois-Rivières, Qué.
“	3 “	18 “ ‘90	29 “ ‘90	*	37 ..	Magistrat du District Trois-Rivières, Qué.

a A être détenu à l'école industrielle jusqu'à l'âge de 17 ans, puis libéré.

b \$50 d'amende.

c \$160 d'amende et les frais.

* Aucune raison donnée pour les pardons ou commutations.

TABLE VII—Cases in which the Prerogative of Mercy has been exercised during the year ended the 30th September, 1891, in favour of Prisoners committed to the following Prisons.

(Province of Quebec.)		COMMON JAILS—Concluded.					
CRIME.	Sen- tence.	DATE OF		Conditions upon which Pardon or Commutation was granted.	Age and Sex.		By what Court tried.
		Sentence or Commital.	Pardon or Commuta- tion.		M	F	
Larceny.....	12 m's.	July 9, '90	Feb. 18, '91	*	20	Sessions, Montreal, Que.	
".....	10 "	June 6, '90	" 18, '91	*	63	District Magist., Chicoutimi, Que.	
".....	6 "	Feb. 14, '91	June 24, '91	*	32	Sessions, Montreal, Que.	
".....	6 "	May 15, '91	July 25, '91	Reduction of 3 mo's.	45	" "	
".....	3 "	Sept. 5, '90	Nov. 8, '90	*	21	" "	
Assault.....	2 "	Apr. 22, '91	July 28, '91	*	38	Recorder, Montreal, Que.	
Vagrancy.....	3 "		Sept. 11, '90	Feb. 26, '91	*	19	" "
".....	3 "	Aug. 13, '90	Oct. 31, '90	*	38	Sessions "	
Refusing to support family.....	6 "	July 11, '90	Dec. 1, '90	*	50	" "	
Refusing to provide for family.....	6 "	" 2, '90	" 22, '90	*	30	" "	
(Province of Nova Scotia and New Brunswick.) PROVINCIAL PENITENTIARY—DORCHESTER.							
Murder.....	a Life	Dec. 21, '80	Dec. 1, '90	*	60	Supreme, Annapolis, N.S.	
Arson.....	14 yrs.	Nov. 17, '84	Jan. 5, '91	Sentence reduced to 10 years.....	42	Assize, St. Andrews, N.B.	
Housebreaking.	27 m's.	" 28, '90	" 1, '91	1 year remitted.....	21	County, Halifax, N.S.	
".....	27 "	" 28, '90	" 1, '91	".....	22	" "	
Burglary and larceny.	4 yrs.	Mar. 9, '88	May 2, '91	*	17	" "Dorchester, N.B.	
".....	2 "	" 27, '89	Nov. 29, '90	*	19	Supreme, Halifax, N.S.	
Larceny (3 indict- ments).....	7 "	May 22, '86	July 25, '91	*	26	" "St. John, N.B.	
Obtaining money un- der false pretences..	4 "	Apr. 11, '90	Dec. 1, '90	*	44	County, Pictou, N.S.	
(Prov. of N. Scotia and N. Brunswick.) COMMON JAILS.							
Indecent assault.....	b2 yrs.	Mar. 31, '91	Apr. 28, '91	First portion of flog- ging remitted.....	40	Assize, Halifax, N.S.	
Larceny.....	6 m's.	Nov. 24, '90	Jan. 15, '91	*	50	County, Dorchester, N.B.	
Vagrancy.....	\$50 or 6 m's.	Oct. 10, '90	Dec. 18, '90	*	20	Dist. Mag., Sydney, N.S.	
(Province of Manitoba.) PROVINCIAL PENITENTIARY.							
Manslaughter.....	20 yrs.	Sep. 25, '85	May 28, '91	*	24	Dist. Mag., Battleford, N.W.T.	
Arson.....	10 "	" 22, '85	" 28, '91	*	26	" " "	
Poisoning a horse ...	5 "	Aug. 2, '90	July 28, '91	When he shall have served 2 years with remission.....	31	Ass., Moosomin, N.W.T.	
Larceny.....	2 "	Jan. 23, '89	" 28, '91	*	22	Supr., Fort McLeod "	
a Death sentence previously commuted. b And to receive 40 lashes, viz.: 20 during May and 20 during last month imprisonment. d And \$20 fine or 3 other months. * No reason given for pardon or commutation.							

TABLEAU VII—Cas où le droit de grâce a été exercé durant l'année finissant le 30 septembre 1891, en faveur des prisonniers envoyés aux prisons suivantes.

(Province de Québec.)		PRISONS COMMUNES—Fin.				
CRIME.	Sen- tence.	DATE DE		Conditions sur lesquelles le pardon ou commutation a été accordé.	Age et sexe. H F	Par quelle cour mis en jugement.
		Sentence ou emprison- nement.	Pardon ou commuta- tion.			
Larcin.	12m's.	9 juill. '90	18 fév. '91	*	20	Sessions, Montréal, Qué.
"	10 "	6 juin '90	18 " '91	*	63	Magistrat du Dist., Chi- coutimi, Qué.
"	6 "	14 fév. '91	24 juin '91	*	32	Sessions, Montréal, Qué.
"	6 "	15 mai '91	25 juill. '91	3 mois remis.	45	"
"	3 "	5 sept. '90	8 nov. '90	*	21	"
Voies de fait.	2 "	22 avril '91	28 juill. '91	*	38	Recorder "
Vagabondage.	3 "					
"	6 "	11 sept. '90	26 fév. '91	*	19	"
"	3 "	13 août '90	31 oct. '90	*	38	Sessions "
Refus de pouv. aux be- soins de sa famille. .	6 "	11 juill. '90	1 déc. '90	*	50	"
Refus de pouv. aux be- soins de sa famille. .	6 "	2 " '90	22 " '90	*	30	"

(Provinces de la Nouvelle-Ecosse et du Nouv.-Brunswick.)		PÉNITENCIER PROVINCIAL—DORCHESTER.				
Meurtre	a A vie	21 déc. '80	1 déc '90	*	60	Supr., Annapolis, N.-E.
Incendie	14ans.	17 nov. '84	5 janv. '91	Sentence réduite à 10 ans.	42	Assis., St. Andrews, N.-B.
Bris de maison.	27m's.	28 " '90	1 " '91	1 an remis.	21	Comté, Halifax, N.-E.
"	27 "	28 " '90	1 " '91	1 "	22	"
Vol avec effraction. .	4ans.	9 mars '88	2 mai '91	*	17	"
"	2 "	27 " '89	29 nov. '90	*	19	Suprême, Halifax, N.-E.
Larcin (3 indict- ments)	7 "	22 mai '86	25 juill. '91	*	26	"
Obtention d'arg. sous faux prétextes.	4 "	11 avril '90	1 déc. '90	*	44	Comté, Pictou, N.-E.

(Prov. de la N.-Ecosse et du N.-Brunswick.)		PRISONS COMMUNES.				
Attentat à la pudeur. .	62ans.	31 mars '91	28 avril '91	La première partie du supl. du fouet remis.	40	Assises, Halifax, N.-E.
Larcin	6m's.	24 nov. '90	15 janv. '91	*	50	Comté, Dorchester, N.-B.
Vagabondage.	\$50 ou 6m's.	10 oct. '90	18 déc. '90	*	20	M. du Dist., Sydney, N.-E.

(Province de Manitoba.)		PÉNITENCIER PROVINCIAL.				
Homicide non prém. .	20 ans	25 sept. '85	28 mai '91	*	24	Mag. du Dist., Battleford, T. du N.-O. "
Incendie	10 "	22 " '85	28 " '91	*	26	"
Empoisonnement d'un cheval.	5 "	2 août '90	28 juill. '91	A être libéré après avoir servi 2 ans avec rémission.	31	Ass., Moosomin, T. du N. O.
Larcin	2 "	23 janv. '89	28 " '91	*	22	Supr., Fort McLeod "

a La sentence de mort ayant été antérieurement commuée.
b Et a recevoir 40 coups de fouet, savoir : 20 durant le mois de mai et 20 durant le dernier mois de son emprisonnement.
d Et \$20 d'amende ou 3 autres mois. * Aucune raison donnée pour les pardons ou commutations.

TABLE VII—Cases in which the Prerogative of Mercy has been exercised during the Year ended the 30th September, 1891, in favour of Prisoners committed to the following Prisons.

(Province of British Columbia.) PROVINCIAL PENITENTIARY—NEW WESTMINSTER.

CRIME.	Sen- tence.	DATE OF		Conditions upon which Pardon or Commutation was granted.	Age and Sex MF	By what Court tried.
		Sentence or Comm- ital.	Pardon or Comm- utation.			
Murder.....	a Life.	Nov. 16, '86	Jan. 22, '91	*	23 ..	Assize, Lytton, B.C.
Assault with intent..	2 yrs.	Apr. 18, '89	Dec. 13, '90	*	32 ..	County, Kamloops, B.C.
Unnatural offence..	2 "	Nov. 13, '89	Sep. 21, '91	*	60 ..	Assize, New Westmin- ster, B.C.

(North-West Territories.) | STONY MOUNTAIN PENITENTIARY.

Horse-stealing.....	5 yrs.	May 17, '87	May 1, '91	*	25 ..	Supreme, Fort McLeod, N.W.T.
"	5 "	" 17, '87	" 1, '91	*	29 ..	" Fort McLeod, N.W.T.
Receiving stolen pro- perty	3 "	Aug. 17, '71	Jan. 27, '91	*	55 ..	Gen. Quarterly, Winni- peg, Man.

(North-West Territories.) POLICE GUARD ROOM.

Horse-stealing.....	23 m's	May 21, '89	Feb. 2, '91	*	35 ..	Supreme, Prince Albert, N.W.T.
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NOT IMPRISONED.

Larceny				Free pardon by spe- cial warrant.....		Supreme, Moosomin, N. W.T.
"				Free pardon by spe- cial warrant		" Moosomin, N. W.T.

DEATH SENTENCE COMMUTED DURING THE YEAR ENDED 30TH SEPTEMBER, 1891.

Murder.....	Death	Apr. 1, '90	Dec. 10, '90	Life, St. Vincent de Paul Penitentiary.		Queen's B., Montmagny.
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a Death sentence previously commuted.

c Escape from penitentiary in 1871; recaptured and re-imprisoned in April, 1889.

* No reason given for pardon or commutation.

TABLEAU VII—Cas où le droit de grâce a été exercé durant l'année finissant le 30 septembre 1891, en faveur des prisonniers envoyés aux prisons suivantes.

(Prov. de la Col.-Britannique.) PÉNITENCIER PROVINCIAL—NEW WESTMINSTER.

CRIME.	Sen- tence.	DATE DE		Conditions sur lesquelles le pardon ou commutation a été accordé.	Age et sexe H F	Par quelle cour mis en jugement.
		Sentence ou emprison- nement.	Pardon ou commuta- tion.			
Meurtre.....	a A vie	16 nov. '86	22 janv. '91	*	23	Assises, Lytton, C.-B.
Voies de fait avec in- tentation.....	2 ans.	18 avril '89	13 déc. '90	*	32	Comté, Kamloops, C.-B.
Délits contre nature..	2 "	13 nov. '89	21 sept. '91	*	60	Assises, New Westminster, C.-B.

(Territoires du N.-O.)

PÉNITENCIER DE STONY MOUNTAIN.

Vol de chevaux	5 ans.	17 mai '87	1 mai '91	*	25	Suprême, Fort McLeod, T. du N.-O.
"	5 "	17 " '87	1 " '91	*	29	" Fort McLeod, T. du N.-O.
Recel.....	c 3 "	17 août '71	27 janv. '91	*	55	Sessions, Winnipeg, Man.

(Territoires du N.-O.)

POSTE DE POLICE.

Vol de chevaux	23 m's	21 mai '89	2 fév. '91	*	35	Suprême, Prince Albert, T. du N.-O.
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NON EMPRISONNÉS.

Larcin.....				Pardonnés par man- dat spécial.....		Suprême, Moosomin, T. du N.-O.
"				Pardonnés par man- dat spécial.....		" Moosomin, T. du N.-O.

SENTENCE DE MORT COMMUÉE DURANT L'ANNÉE FINISSANT LE 30 SEPT. 1891.

Meurtre	Mort.	1 avril '90	10 déc. '90	A vie, Pénitencier de St. Vincent de P.		B. Reine, Montmagny.
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a La sentence de mort ayant été antérieurement commuée.

c S'est évadé du pénitencier en 1871, repris et remis en prison en avril 1889.

* Aucune raison donnée pour les pardons ou commutations.

INDICTABLE OFFENCES.

	Pages	34 and following to	37
Abduction.....	26	"	29
Abortion and attempt to procure abortion	106	"	109
Arson.....	38	"	45
Assaults, aggravated	46	"	57
" and battery.....	22	"	25
" indecent	42	"	49
" on and obstructing peace officer.....	30	"	33
" on females.....	10	"	13
Attempt and carnally knowing a girl of tender years.....	6	"	13
" at rape.....	122	"	129
" to commit suicide.....	2	"	5
" to murder.....	30	"	33
Bigamy.....	74	"	77
Bringing stolen goods into Canada.....	58	"	61
Burglary and having burglar's tools.....	118	"	121
Carrying unlawful weapons	26	"	29
Concealing the birth of infants.....	130	"	133
Conspiracy.....	30	"	33
Deserting child.....	118	"	125
Election Act, violation of.....	94	"	97
Embezzlement.....	18	"	21
Endangering safety of passengers on railways.....	126	"	133
Escape and attempt to escape from prison.....	98	"	105
False pretences.....	90	"	97
Feloniously receiving	110	"	117
Forgery and offences against the currency.....	94	"	101
Fraud.....	122	"	125
Highway obstructing.....	74	"	81
Horse, cattle and sheep stealing.....	62	"	69
House and shopbreaking.....	122	"	125
Indecent exposure and other offences against public morals.....	126	"	129
Keeping and frequenting disorderly houses.....	78	"	93
Larceny.....	70	"	73
" from dwelling houses	74	"	77
" from the person.....	34	"	37
Libel	106	"	113
Malicious injury to horses, cattle and other property.....	2	"	9
Manslaughter.....	2	"	5
Murder.....	114	"	121
Perjury and subornation of perjury.....	6	"	9
Rape.....	18	"	21
Refusing to provide for family.....	122	"	125
Revenue laws, offences against.....	66	"	73
Robbery and demanding with menaces.....	34	"	37
Seduction.....	14	"	21
Shooting, stabbing, wounding.....	26	"	29
Sodomy and bestiality	118	"	121
Stealing registered letters and other mail matter.....	130	"	133
Various other misdemeanours.....	102	"	109
" offences against property without violence.....	54	"	57
" " the person	66	"	69
Warehouse and freight car breaking.....			

DÉLITS SUJETS À POURSUITE.

	Pages	46 et suivantes à	57
Agression avec voies de fait.....	22	"	25
Attentat à la pudeur.....	26	"	29
Avortement et tentative d'avortement.....	30	"	33
Bigamie.....	62	"	69
Bris de maisons et de magasins.....	66	"	69
Bris d'entrepôts et de wagons de fret.....	130	"	133
Conspiration.....	118	"	125
Infraction à la loi électorale.....	122	"	125
Délits contre le revenu de l'État.....	102	"	109
" divers sans violence contre la propriété.....	30	"	33
Désertion d'enfants.....	94	"	97
Détournement.....	130	"	133
Divers autres délits.....	106	"	113
Dommages malicieux aux chevaux, bestiaux, etc.....	74	"	77
Effets volés apportés en Canada.....	34	"	37
Enlèvement.....	126	"	133
Evasion et tentative d'évasion; bris de prison.....	18	"	21
Exposant au péril les passagers sur les chemins de fer.....	122	"	125
Exposition indécente et autre délits contre la morale publique.....	110	"	117
Faux et délits par rapport à la monnaie.....	98	"	105
Faux prétextes.....	94	"	101
Fraude.....	2	"	9
Homicide non prémédité.....	106	"	109
Incendie par malveillance.....	78	"	93
Larcin.....	34	"	37
Libelle.....	2	"	5
Meurtre.....	122	"	125
Obstruant la voie publique.....	54	"	57
Outrages divers contre la personne.....	114	"	121
Parjure et subornation de parjure.....	118	"	121
Port d'armes illégal.....	90	"	97
Recel.....	18	"	21
Refus de pourvoir aux besoins de la famille.....	34	"	37
Séduction.....	26	"	29
Sodomie et bestialité.....	26	"	29
Suppression d'enfants.....	126	"	129
Tenant et fréquentant des maisons de désordre.....	2	"	5
Tentative de meurtre.....	122	"	129
" de suicide.....	6	"	13
" de viol.....	10	"	13
" et commerce charnel avec une fille en bas âge.....	14	"	21
Usage d'armes avec intention.....	6	"	9
Viol.....	42	"	49
Voies de fait et faisant obstacle à un officier de la paix.....	38	"	45
" graves et lésions corporelles.....	30	"	33
" sur femmes.....	58	"	61
Vol avec effraction et ayant en possession des outils de voleur.....	70	"	73
" dans des maisons habitées.....	74	"	81
" de chevaux, bétail et moutons.....	118	"	121
" de lettres chargées et autres matières postales.....	66	"	73
" et demandes avec menaces.....	74	"	77
" sur la personne.....			

SUMMARY CONVICTIONS.

Alberta, Northern, N.W.T.—Nord, T. du N.-O.	Pages 191
“ Southern “ Sud “	“ 191
Assiniboia, East “ Est “	“ 192
“ West “ Ouest “	“ 192
Algoma, Ont.	“ 167
Annapolis, N.S.—N.-E.	“ 148
Arthabaska, Que	“ 160
Bedford, Que	“ 160
Brant, Ont.	“ 167
British Columbia—Colombie-Britannique (Province)	“ 189, 190 and 196
Bruce, Ont.	“ 168
Canada, Grand Totals—Grands Totaux	“ 197
Cape Breton, N.S.—N.-E.	“ 148
Carleton, N.B.	“ 155
“ Ont.	“ 168
Charlotte, N.B.	“ 155
Clinton, B.C.—Col.-B.	“ 189
Colchester, N.S.—N.-E.	“ 149
Cumberland, N.S.—N.-E.	“ 149
Digby, N.S.—N.-E.	“ 150
Dufferin, Ont.	“ 169
Elgin, Ont.	“ 169
Essex, Ont.	“ 170
Frontenac, Ont.	“ 170
Gaspé, Que.	“ 161
Gloucester, N.B.	“ 156
Grey, Ont.	“ 171
Guysborough, N.S.—N.-E.	“ 150
Haldimand, Ont.	“ 171
Halifax, N.S.—N.-E.	“ 151
Halton, Ont.	“ 172
Hants, N.S.—N.-E.	“ 151
Hastings, Ont.	“ 172
Huron, Ont.	“ 173
Inverness, N.S.—N.-E.	“ 152
Joliette, Que.	“ 161
Kamouraska, Que.	“ 162
Kent, N.B.	“ 156
“ Ont.	“ 173
King's, N.B.	“ 157
“ N.S.—N.-E.	“ 152
“ P.E.I.—Ile du P.-E.	“ 146
Lambton, Ont.	“ 174
Lanark, Ont.	“ 174
Leeds and Grenville, Ont.	“ 175
Lennox and Addington, Ont.	“ 175
Lincoln, Ont.	“ 176
Lunenburg, N.S.—N.-E.	“ 153

CONDAMNATIONS SOMMAIRES.

Manitoba, Central—Centre.....	Pages 187
“ Eastern—Est.....	“ 187
“ (Province).....	“ 187, 188 et 196
“ Western—Ouest.....	“ 188
Middlesex, Ont.....	“ 177
Montmagny, Que.....	“ 162
Montreal, Que.....	“ 163
New Brunswick—Nouveau-Brunswick (Province).....	“ 155 to—à 159 et 194
New Westminster, B.C.—Col.-B.....	“ 189
Norfolk, Ont.....	“ 177
Northumberland, N.B.....	“ 157
Northumberland and Durham, Ont.....	“ 177
Nova Scotia—Nouvelle-Ecosse (Province).....	“ 148 to—à 154 et 194
Ontario.....	“ 178
“ (Province).....	“ 167 to—à 186 et 195
Ottawa, Que.....	“ 163
Oxford, Ont.....	“ 178
Peel, Ont.....	“ 179
Perth, Ont.....	“ 179
Peterborough, Ont.....	“ 180
Pictou, N.S.—N.-E.....	“ 153
Prescott et Russell, Ont.....	“ 180
Prince Edward Island—Ile du Prince-Edouard (Province).....	“ 146, 147 et 193
Prince Edward, Ont.....	“ 181
Prince, P.E.I.—Ile du P.-E.....	“ 146
Quebec.....	“ 164
“ (Province).....	“ 160 to—à 166 & 195
Queen's, P.E.I.—Ile du P.-E.....	“ 147
Renfrew, Ont.....	“ 181
Richelieu, Que.....	“ 164
Rimouski, Que.....	“ 165
St. François, Qué.....	“ 165
St. Hyacinthe, Que.....	“ 166
St. John, N.B.....	“ 158
Saskatchewan, N.W.T.—T. du N.-O.....	“ 193
Shelburne, N.S.—N.-E.....	“ 154
Simcoe, Ont.....	“ 182
Stormont, Dundas and Glengarry, Ont.....	“ 182
Territories—Territoires.....	“ 191, 192, 193 et 197
Three Rivers—Trois-Rivières.....	“ 166
Thunder Bay, Ont.....	“ 183
Victoria, B.C.—Col.-B.....	“ 190
“ Ont.....	“ 183
Waterloo, Ont.....	“ 184
Welland, Ont.....	“ 184
Wellington, Ont.....	“ 185
Wentworth, Ont.....	“ 185
Westmoreland, N.B.....	“ 158
Yarmouth, N.S.—N.-E.....	“ 154
York, N.B.....	“ 159
“ Ont.....	“ 186

APPENDIX TO THE REPORT OF THE MINISTER OF AGRICULTURE

EXPERIMENTAL FARMS

REPORTS

OF THE

DIRECTOR	-	-	-	-	-	-	WM. SAUNDERS.
AGRICULTURIST	-	-	-	-	-	-	JAS. W. ROBERTSON.
HORTICULTURIST	-	-	-	-	-	-	JOHN CRAIG.
CHEMIST	-	-	-	-	-	-	F. T. SHUTT, M.A.
ENTOMOLOGIST and BOTANIST	-	-	-	-	-	-	JAS. FLETCHER.
POULTRY MANAGER	-	-	-	-	-	-	A. G. GILBERT.
SUPT. EXPERIMENTAL FARM,	Nappan, N.S.	-	-	-	-	-	WM. M. BLAIR.
do	do	Brandon, Manitoba.	-	-	-	-	S. A. BEDFORD.
do	do	Indian Head, N.-W.T.	-	-	-	-	ANGUS MACKAY.
do	do	Agassiz, B.C.	-	-	-	-	THOS. A. SHARPE.

FOR

1891

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OTTAWA:

PRINTED BY S. E. DAWSON, PRINTER TO THE QUEEN'S MOST
EXCELLENT MAJESTY

1892

APPENDIX

TO THE

REPORT OF THE MINISTER OF AGRICULTURE

ON

EXPERIMENTAL FARMS.

OTTAWA, 20th March, 1892.

SIR,—I have the honour to submit for your approval my fifth annual report of the work done and in progress at the several experimental farms, which have, under your instruction, been established in different parts of the Dominion.

You will also find appended reports from the following officers of the Central Experimental Farm: From the Agriculturist, Mr. James W. Robertson; from the Horticulturist, Mr. John Craig; from the Chemist, Mr. Frank T. Shutt, and from the Entomologist and Botanist, Mr. James Fletcher. A report is also submitted from the Poultry Manager, Mr. A. G. Gilbert.

From the branch experimental farms there are reports from Mr. Wm. M. Blair, superintendent of the experimental farm for the Maritime Provinces, at Nappan, Nova Scotia; from Mr. S. A. Bedford, superintendent of the experimental farm for Manitoba, at Brandon; from Mr. Angus Mackay, superintendent of the experimental farm for the North-West Territories, at Indian Head; and from Mr. Thos. A. Sharpe, superintendent of the experimental farm for British Columbia, at Agassiz.

These reports will be found to cover experimental work and carefully conducted observations in almost every department of agriculture and horticulture. They also contain much information relating to those branches of chemical work which have a direct bearing on agriculture, and to those departments of entomology and botany which are of practical importance to the farmers of this country.

It is hoped that the facts submitted, and the results of the experimental work recorded in this report, may be helpful to all those engaged in cultivating the soil, and that they may thus aid in furthering the agricultural and horticultural interests of the Dominion.

I have the honour to be, Sir,

Your obedient servant,

WM. SAUNDERS.

The Honourable

The Minister of Agriculture,

Ottawa.

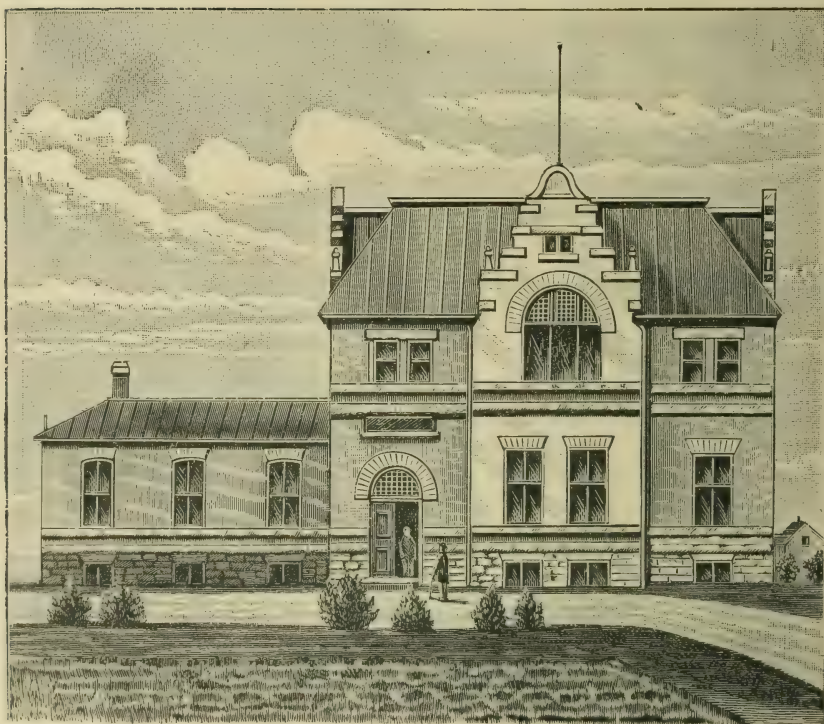


Figure 1.—Office Building, Museum and Chemical Laboratory
of the Central Experimental Farm.

ANNUAL REPORT

ON THE

EXPERIMENTAL FARMS.

REPORT OF THE DIRECTOR.

During the season of 1891 farmers in almost every part of the Dominion of Canada have been blessed with bountiful crops. With few exceptions favourable weather for seeding, growth and harvesting has prevailed from the Atlantic to the Pacific, and the results have been such as to provoke a general spirit of thankfulness among those engaged in agricultural pursuits. Compared with the average of the past nine years, the statistics of Ontario show an increase for the past year in that province in fall wheat of 5·7 bushels per acre; in spring wheat, 5·4 bushels; barley, 3·2; oats, 5·7; peas, 3·6, and of corn in the ear of 9·8 bushels per acre. In turnips the crop has been increased above the average for the period named by 136 bushels per acre; mangels, 76 bushels; carrots, 36 bushels; and potatoes, 28·9 bushels, the only items where there has been any falling off being in beans and hay. The former is less than the average by 1·3 bushels per acre, and the latter by about four-tenths of a ton per acre. This last has no doubt been due to the very dry weather which prevailed generally during the month of June. Farmers have also had favourable results in the Maritime Provinces. In Manitoba and the North-West Territories, notwithstanding the strong winds which prevailed in the spring and the early frosts in autumn, the returns on the whole have been most bountiful. The stores of fertility laid up by nature with so liberal a hand in the soil of those fertile plains promise food and plenty in the future to in-coming multitudes. In British Columbia also almost every sort of crop is said to have been above the average. The outlook from an agricultural standpoint is most encouraging for Canada, for it will be found that associated with the favourable season there have been improvements in the preparation of the soil, in the selection of the seed and in the general management of the crops, showing that increased intelligence is being brought to bear on farm work. The stores of fertility in the soil are being more carefully husbanded by a judicious succession of crops, and greater pains are taken to replace the elements which repeated cropping has removed. The mental inactivity of the past is fast being replaced by a spirit of enquiry which augurs well for the future.

That much may still be done by the farmer to improve his condition and add to his profits will scarcely admit of a doubt, and while there are some conditions which affect his crops which are beyond his control, the intelligent application of improved methods will enable him to make the very best of every favourable circumstance which may arise. One of the most important means of improvement within his reach is the selection of good seed, and it is worth while to pause to consider how much may be involved in this one point, hitherto so often neglected. Every seed has an individuality of its own impressed on it by nature, which, under favouring conditions, will manifest itself. Each is provided with a germ wherein lies this impress of individuality, and this germ is imbedded in a store of such food as is best suited to stimulate the growth of the young plant. When the seed is plump that food supply is bountiful, and the infant plant so nourished makes rapid head-

way, but where the seed is shrunken and imperfectly developed the store of nourishment is much lessened. After the young plant has begun to grow a period of comparative rest is needed, during which growth above is scarcely perceptible, until the roots are sufficiently extended to gather food for further development; the rapidity with which this progress is made depends very much on the plumpness and inherent vigour of the seed. Crops are thus often enfeebled at the start and delayed in ripening by the use of poor seed, or they ripen unevenly and lack that vigour so necessary to a liberal return.

As an illustration we may take the oat crop. How often it has occurred that farmers have held over for seed such oats as were too poor in quality to sell to advantage, thinking that any sort was good enough for this purpose, and how frequently has the yield been poor and the grain of light weight. It is not unusual for good farmers who provide good seed of fertile sorts to have crops of this grain of from 50 to 60 bushels per acre, while the average is about 35 bushels; by the exercise of greater care in this respect the average production may be materially increased, and every additional bushel per acre would in Ontario alone add to the returns of the farming community nearly \$625,000 a year. Or, taking the improvement in another line, it is well known that some farmers by the selection of good plump seed and thorough preparation of the soil grow oats from four to eight pounds heavier per bushel than many of their neighbours. It should not be forgotten that with an equal yield in measured bushels per acre an average increase in the single province of Ontario of one pound per bushel in weight in the entire crop would be a gain to the farmers, basing the estimate on the crop of last year, of \$750,000 per annum. An addition of one bushel per acre on the wheat crop of Ontario, including both fall and spring wheat, would in like manner add to the gains of the farmers over \$1,300,000 in a single season. These statements respecting wheat and oats will apply with more or less force to every other crop.

Good varieties of grain sometimes deteriorate by long and careless cultivation to such an extent as to make them unprofitable, when they are usually replaced by other sorts. Judicious selection and change of seed would no doubt conserve this fertility and add greatly to the length of life of such varieties. New sorts are obtained either by careful selection and cultivation, by the preservation of occasional sports which occur in nature or by artificial crossing. The watchful farmer may do much to improve his own grain, and furnish good seed to his less thoughtful neighbours by the first method, and occasionally secure new varieties by the second, but the third requires much more skill and care and is usually practised only by the expert in such matters. On the experimental farms all these methods are in operation, and in a very few years a large number of new sorts which have been originated in this climate will be available for test in different parts of the Dominion.

DISTRIBUTION OF SEED GRAIN.

In view of the importance of placing within the reach of Canadian farmers the best varieties of seed grain obtainable, all the most promising sorts are yearly brought together and tested at the experimental farms. The crops of such sorts as are likely to be generally useful are preserved, and under instruction of the Minister of Agriculture distributed the following season to those who apply for them as long as the supply lasts. The character of this free distribution is sometimes misunderstood. Some farmers think they have the right to demand samples of the seed of every sort of grain and crop grown on the farm, and lists are often received covering several pages of a letter enumerating all sorts of grain, vegetable seeds, bulbs, flowers, &c., which they desire to have sent them; others, again, will ask for seed sufficient for from 10 to 50 acres of land. It is not intended that this branch of the work of the experimental farms should in any way interfere with the business of the seedsmen, but to limit the distribution mainly to such varieties of seed grain as are not easily obtainable in the ordinary channels of commerce. The weight of each sample is limited to three pounds, and the number sent to each farmer is usually two or at most three, so that the supply available may be made to cover every year a large area in the country.

The samples sent out in the early months of 1891 were distributed as follows :—

Prince Edward Island.

Oats.....	107
Barley.....	50
Wheat.....	64
Peas.....	18
Indian corn.....	225
Potatoes.....	4
	<hr/>
	468
	<hr/>

Number of applicants supplied, 256.

Nova Scotia.

Oats.....	343
Barley.....	285
Wheat.....	300
Peas.....	63
Indian corn.....	695
Spring rye.....	27
Potatoes.....	31
	<hr/>
	1,744
	<hr/>

Number of applicants supplied, 1,000.

New Brunswick.

Oats.....	174
Barley.....	51
Wheat.....	88
Peas.....	55
Potatoes.....	1
	<hr/>
	369
	<hr/>

Number of applicants supplied, 244.

Quebec.

Oats.....	1,380
Barley.....	960
Wheat.....	296
Peas.....	280
Spring rye.....	109
Potatoes.....	89
Indian corn.....	2
	<hr/>
	3,116
	<hr/>

Number of applicants supplied, 1,205.

Ontario.

Oats.....	1,880
Spring wheat.....	950
Barley.....	860
Peas.....	440
Spring rye.....	4
Indian corn.....	10
Potatoes.....	105
	<hr/>
	4,249
	<hr/>

Number of applicants supplied, 1,575.

Manitoba.

Oats.....	468
Wheat.....	251
Barley.....	159
Peas.....	154
Indian corn.....	21
Potatoes.....	2
	<hr/>
	1,055
	<hr/>

Number of applicants supplied, 406.

North-West Territories.

Oats.....	267
Barley.....	260
Wheat.....	210
Peas.....	149
Indian corn.....	6
Potatoes.....	3
	<hr/>
	895
	<hr/>

Number of applicants supplied, 313.

British Columbia.

Oats.....	109
Barley.....	179
Wheat.....	62
Peas.....	30
Spring rye.....	9
Potatoes.....	1
	<hr/>
	390
	<hr/>

Number of applicants supplied, 141.

The following list shows the number of 3-lb. packages of the different varieties which have been distributed :—

Oats.

Prize Cluster.....	2,801
Victoria Prize.....	540
Flying Scotchman.....	531
Bonanza.....	383
Banner.....	378
American Triumph.....	71
Egyptian.....	24
Total.....	<u>4,728</u>

Barley—Two-rowed.

Carter's Prize Prolific.....	801
Danish Chevalier.....	650
Golden Melon.....	399
Webb's Kinver Chevalier.....	359
Carter's Goldthorpe.....	275
Saale.....	190
Beardless.....	46
Large Two-rowed Naked.....	20
Total.....	<u>2,740</u>

Barley—Six-rowed.

Baxter's Six-rowed.....	40
Indian from Spiti valley.....	24
Total.....	<u>64</u>

Spring Wheat.

Campbell's White Chaff.....	988
Ladoga.....	956
Red Fife.....	268
Johnston's Defiance.....	9
Total.....	<u>2,221</u>

Peas.

Multiplier.....	<u>1,189</u>
-----------------	--------------

Indian Corn.

Pearce's Prolific.....	}	885
Red Cob Ensilage.....		
Canada Yellow.....		
Thoroughbred White Flint.....		74
Total.....		<u>959</u>

Rye.

Spring rye	149
------------------	-----

Potatoes.

Chicago Market... ..	96
Early Ohio.	70
Early Sunrise... ..	68
Rural Blush.....	1
Total.....	235

Total number of samples distributed, 12,285.

Number of applicants supplied, 5,140.

REPORTS RECEIVED FROM SAMPLES DISTRIBUTED, WITH SOME RESULTS OF FIELD CROPS.

PRIZE CLUSTER OATS.

This variety of oats has again given good returns. At the Central Experimental Farm the yield has varied on different soils from 84 bushels and 4 lbs. to 28 bushels 28 lbs., weighing about 42 lbs. per bushel. A large field averaged 48 bushels 24 lbs., and it was considered that one-fourth of the grain was beaten out by a hail storm, which occurred after cutting and while the grain was in stook. On the experimental farm at Nappan, N. S., the yield in plot culture has been quite phenomenal, having reached 104 bushels 19 lbs. per acre, weighing $38\frac{1}{2}$ lbs. per bushel. At Brandon, Man., these oats have given 54 bushels 15 lbs. per acre, weighing 39 lbs. per bushel, and at Indian Head, N.W.T., 82 to 86 bushels per acre, the grain having reached the extraordinary weight of 47 to $48\frac{1}{2}$ lbs. per bushel. At Agassiz, B. C., the return has been smaller, being 28 bushels 28 lbs. per acre. These oats maintain their character for earliness, ripening usually from two or three days to a week earlier than many other sorts. In the following series of results by provinces, a summary is first given, followed by extracts from a few of the reports received from those farmers who have had the largest yields from the 3-lb. samples:—

PRINCE EDWARD ISLAND.

Number of reports received, 16; average yield from 3 lbs., $63\frac{1}{16}$ lbs.; average weight per bushel, $43\frac{1}{16}$ lbs. The heaviest sample weighed 45 lbs. per bushel, and was grown by Robert Wood, of Mount Herbert, who reports a yield of 60 lbs.

John Clark, of Alberton, had 85 lbs. from the 3 lbs. sown, and says: "Sown broadcast on heavy clay land 29th April; harvested 25th August; no rust or smut; straw very strong and white. This grain ripens ten days earlier than any other." The sample returned weighed $42\frac{1}{2}$ lbs. per bushel.

Robert Shaw, of Piusville, reports a yield of 70 lbs. He says: "Sown broadcast 2nd June on heavy land newly burnt; harvested 5th September; no rust or smut; straw bright; ripens earlier than any other oats sown and gives double the yield. Would like you to favour me with some more samples." This grain weighed 44 lbs. per bushel.

NOVA SCOTIA.

Number of reports received, 50; average yield, $63\frac{1}{2}$ lbs.; average weight per bushel, $40\frac{1}{2}$ lbs. The heaviest sample was grown by Andrew McFarlane, of Antigonish; it weighed $44\frac{1}{2}$ lbs. and the yield was 55 lbs.

James Northrup, of Harbourville, reports a yield of 155 lbs. from a sowing of $\frac{7}{8}$ ths of 3 lbs. of seed, and says: "Sown in drills 25th May on dry, loamy soil; har-

vested 14th September; there was no rust, but some smut; straw very stout; several days earlier than the Banner or any other kind that I sowed, and heavier. I consider them very fine oats." The sample returned weighed 39 lbs. per bushel.

H. Sabeau, of New Tusket, harvested 150 lbs. from 3 lbs. sown, and reports as follows: "Sown broadcast 3rd May on gravelly loam; harvested 12th August; no rust or smut; straw very stout; ripens early; heavier than any other sort sown." Sample returned weighed $42\frac{1}{4}$ lbs. per bushel.

Jabez McLennan, of North Brookfield, reports a yield of 143 lbs. from 3 lbs. sown, and says: "Sown broadcast 10th May on rich, dry, loamy soil, top dressed with ashes; harvested 15th August; no smut or rust; straw very bright; stood up well; ripened about as other grain alongside; weighed much heavier, the heaviest oats I have ever seen." The sample returned weighed $42\frac{3}{4}$ lbs. per bushel.

NEW BRUNSWICK.

Number of reports received, 31. The average yield was $63\frac{1}{8}$ lbs. and the average weight 40 lbs. per bushel. The heaviest sample weighed $43\frac{3}{4}$ lbs. This was grown by H. V. Price, of Rogersville, who had a yield of 59 lbs.

J. E. Babineau, of Robichaud, reports a yield of 163 lbs. from 3 lbs. sown. He says:—Sown with the hand on heavy damp soil on the 27th of May; harvested 2nd September; no rust or smut; straw very large; ripens a little sooner than other oats, and much heavier." The weight of the sample returned was 40 lbs. per bushel.

William McCullough, of Manners Sutton, had 111 lbs. from 3 lbs. sown, and says: "Sown broadcast 24th May on light loam, top dressed; harvested 25th September; no rust; a little smut; straw very coarse; not as early as other grain, but ripened even." Weight of sample returned, $38\frac{1}{2}$ lbs. per bushel.

David Cunningham, of Hanwell, had a crop of 90 lbs., and reports as follows:— "Sown broadcast 12th May, on black loam; harvested 21st August; no rust or smut; straw very stout; as early as other sorts, with a better yield. I think them a good oat for this place." Weight of sample returned, 40 lbs. per bushel.

QUEBEC.

Number of reports received, 171; average yield, $70\frac{1}{2}$ lbs.; average weight per bushel, $39\frac{5}{8}$ lbs. The heaviest sample weighed $44\frac{1}{4}$ lbs. per bushel, and was grown by Joseph Guay, of Piopolis, who reports a yield of 85 lbs.

M. Godmer, of Ste. Adèle, reports a yield of 297 lbs. from 3 lbs. sown. He says: "Sown broadcast 8th May, on sandy loam, $86 \times 86\frac{1}{2}$ feet; harvested 29th August; no rust or smut; straw much the same as others; grain heavier and earlier." The sample returned weighed $40\frac{1}{4}$ lbs. per bushel.

S. Audette, of St. Ubalde, had a yield of 220 lbs., and reports as follows: "Sown broadcast 20th May, on clay soil; harvested 10th September; there was much rust but no smut; earlier than other sorts and heavier also. If straw had kept straight up think I would have had 100 lbs. more." The sample returned weighed $34\frac{1}{2}$ lbs. per bushel.

George Maynard, of St. Foy, reports a yield of 162 lbs. from 3 lbs. of seed. He says: "Sown broadcast 8th May, on sandy soil, which grew oats last year; harvested 24th August; no rust or smut; straw of good quality; grain heavier and earlier than other sorts." The sample returned weighed $42\frac{1}{4}$ lbs. per bushel.

ONTARIO.

Number of reports received, 183; average yield, $89\frac{1}{8}$ lbs.; average weight per bushel, $38\frac{3}{4}$ lbs. The heaviest sample weighed $45\frac{1}{2}$ lbs. per bushel and was grown by P. Meiklejohn, of Sargison, who reports a yield of 129 lbs.

P. Generaux, of Nosbonsing, reports a yield from 3 lbs. sown of 6 bushels and 17 lbs. (221 lbs.) He says: "Sown 14th May on heavy sandy loam, 64×64 feet; harvested 25th August." The sample he returned weighed $39\frac{1}{2}$ lbs. per bushel.

John Edwards, of Rockland, had 190 lbs., and says: "Sown 29th April on clay loam, spring ploughed and top dressed with manure; plot 24×180 feet; harvested

5th August; no rust or smut; straw grew about 3 feet high and stood well. This grain is better than any ever raised on the farm." The weight of the sample returned was $36\frac{3}{4}$ lbs. per bushel.

Wm. Dunn, Sweet's Corners, had 170 lbs. from 3 lbs. sown, and says: "Sown in drills 1st May, on clay loam; sod ploughed in the fall; plot 33 x 154 feet; harvested 14th August; no rust; no smut; nice bright straw, 3 feet high. I think they are very fine oats. I will have enough to sow two acres next year." The sample returned weighed 37 lbs. per bushel.

John Wiley, of Foye's Hill, had 168 lbs. of oats, after cleaning, from 3 lbs. sown. He says: "Sown 12th May, on clay loam, top dressed; harvested 18th August; no rust; no smut; straw very long and stiff, clean and bright; ripened ten days earlier than our other oats and are heavier. They are the best oats grown in this section; took first prize at two of our township fairs." The weight of the sample returned by Mr. Wiley was $42\frac{1}{2}$ lbs. per bushel.

MANITOBA.

Number of reports received, 25; average yield, $88\frac{1}{2}$ lbs.; average weight per bushel, $37\frac{1}{4}$ lbs. The heaviest sample weighed $44\frac{1}{4}$ lbs., and was grown by A. Malcolm, of Oak Lake, who reports a yield of 20 lbs., and says that blackbirds destroyed most of the crop. George Forbes, of Rothwell, reports a yield of 200 lbs. from 3 lbs. He says: "Sown 27th April, on rich black loam; size of plot, 30 rods, and the width of a Patterson drill, every second cup stopped, and set at 1 bushel per acre; afterwards hoed between the rows. Harvested 1st September; had eleven stooks; badly rusted; no smut; straw very strong, over 6 feet long; think I would have had 400 or 500 lbs. only for rust and blackbirds. Am very proud of these oats; will give them a better chance next year and report again." The sample returned weighed $36\frac{1}{2}$ lbs. per bushel.

Chas. E. Ivens, of Virden, had a yield of 192 lbs. He says: "Sown 7th May, in drills 14 inches apart, on black loam 2 feet deep; 624 square yards; harvested 27th August; no smut or rust; straw long and soft. Ten days later than Bonanza, but the Bonanza was sown much thicker." Weight of sample returned, $40\frac{1}{4}$ lbs. per bushel.

R. Grun, of Emerald Hill, had 180 lbs. from 3 lbs. sown, and says: "Sown 8th May in drills, with press drill, on 9 square rods, on sandy loam; harvested 19th August; a little rust, nothing to hurt; no smut; straw very heavy and rank; ripened twenty days earlier than our other oats; they appear to be just what we want." The sample returned weighed 39 lbs. per bushel.

NORTH-WEST TERRITORIES.

Number of reports received, 21; average yield, $70\frac{1}{2}$ lbs.; average weight per bushel, $38\frac{3}{4}$ lbs. The heaviest sample, which weighed $44\frac{1}{4}$ lbs. per bushel, was grown by T. G. Cooney, of Wascana, who reports a crop of 230 lbs.

T. G. Cooney, of Wascana, reports a yield of 230 lbs. from 3 lbs. of seed. He says: "Sown in drills 27th April, on very heavy clay soil; plot about 1 rod wide and 16 rods long; harvested 25th August; no rust or smut; straw from 5 to 6 feet high; leaves measured $1\frac{1}{2}$ inches in width: it partly lay down; ripens early and compares favourably with other varieties." The sample returned weighed $44\frac{1}{4}$ lbs. per bushel.

Chas. Gilroy, of Regina, had a yield of 128 lbs., and says: "Sown broadcast 16th April on heavy clay soil; size of plot, $16\frac{1}{2}$ x 130 feet; harvested 22nd August; no rust; no smut; straw coarse, 44 inches long." The sample Mr. Gilroy returned weighed 42 lbs. per bushel.

J. J. Porter, of Boharm, had 104 lbs. from 3 lbs. of seed, and says: "Sown with drill 24th April on rich loam; size of plot, 3 x 100 yards; harvested 5th September; some rust; no smut; ripened very uneven; lodged some; yield would have been much heavier had it ripened evenly; some of it was shelled before the balance was ripe." The sample returned weighed $42\frac{1}{2}$ lbs. per bushel.

BRITISH COLUMBIA.

Number of reports received, 2; average yield, 79 lbs.; average weight per bushel, $41\frac{1}{2}$ lbs. The heaviest sample was grown by Hector Ferguson, of Port Haney, who reports a yield of 90 lbs., weighing $41\frac{1}{2}$ lbs. per bushel.

Hector Ferguson, of Port Haney, had a yield of 90 lbs. from 3 lbs. of seed, and says: "Sown broadcast 8th May on an alluvial deposit of sand and clay; size of plot about 50 square yards; harvested 9th September; no rust or smut; straw good; ripens about the same time as the Bonanza, and is a first-class oat." The sample returned weighed $41\frac{1}{2}$ lbs. per bushel.

Hugh Nichol, of Mission, had a crop of 68 lbs. He says: "Sown broadcast 10th April on sandy loam; size of plot, 7 yards by 12; harvested 8th August; no rust or smut; straw strong; ripens early; crop good. I am very well pleased with these oats." The sample returned weighed $40\frac{3}{4}$ lbs. per bushel.

Victoria Prize.

This is a short, plump, white oat, much like the Prize Cluster, but is not uniformly so good a cropper. On the Central Experimental Farm a yield of six acres averaged 26 bushels 29 lbs. per acre, weighing $39\frac{3}{4}$ lbs. per bushel. At the branch farm at Nappan, N.S., the experimental plots yielded 88 bushels 8 lbs. per acre, and at Agassiz, B.C., 25 bushels 30 lbs. per acre.

D. Collins, of Mink River road, P.E.I., had a crop of 67 lbs. from 3 lbs. of seed, and says: "Sown broadcast 5th May on light soil; size of plot, 20 square yards; harvested 19th August; no rust or smut; bright, clean straw; ripens about the same as our common black oats." The sample returned weighed $42\frac{1}{4}$ lbs. per bushel.

V. Penny, of Murray Harbour S., P.E.I., had 45 lbs. He says: "Sown broadcast 12th May on light soil; size of plot, 10 x 15; harvested 25th August; no rust or smut; straw soft; about six days earlier than other varieties." The weight of the sample returned was also $42\frac{1}{4}$ lbs. per bushel.

Hedly V. Price, of Rogersville, N.B., had a yield of 83 lbs. from 3 lbs. of seed. He reports as follows: "Sown broadcast 27th May on sandy loam; size of plot, 12 x 100 feet; harvested 25th August; no rust; no smut; straw strong and stout; earlier than our black oats." The sample returned weighed $40\frac{1}{2}$ lbs. per bushel.

Harvey Nesbit, of Manners Sutton, N.B., had 67 lbs. He says: "Sown broadcast 12th May, on heavy soil; size of plot, 6 x 30 yards; harvested 21st August; no rust; some smut; straw very coarse; is earlier than the other sorts we had." Weight of sample returned, $42\frac{1}{4}$ lbs. per bushel.

J. B. Hamblen, of Pictou, N.S., had a yield of 127 lbs., and says: "Sown broadcast 7th May on sandy loam; size of plot, 30 x 80 feet; harvested 26th August; no smut; no rust; straw tall, 5 feet high; very stout; it became so heavy that it lay down; not any earlier than other sorts." The weight of sample returned was $38\frac{1}{2}$ lbs. per bushel.

W. B. Wallace, of Avondale, N.S., had 122 lbs. He says: "Sown broadcast about the last of May on clay loam; size of plot, 12 x 200 feet; do not know date of harvesting; no rust; no smut; straw remarkably strong; stood up well, better than Prize Cluster; think very favourably of these oats." Weight per bushel, 40 lbs.

A. E. Guerin, of St. Isidore, Quebec, had a yield of 87 lbs. from 3 lbs. of seed. He says: "Sown in drills 30th April, on sticky black soil; size of plot, 5 perches; harvested 10th August; no rust; some heads of smut; straw very strong and good; earlier and heavier than our other oats; a very useful sort for farmers." The sample returned weighed $39\frac{1}{2}$ lbs. per bushel.

D. Leclair, of Ste. Thérèse de Blainville, Que., had 82 lbs., and reports as follows: "Sown broadcast 1st May on rich clay soil; size of plot, 12 x 108 feet; harvested 3rd August; no rust; some heads of smut; straw long, strong and hard." The weight of sample returned was $41\frac{1}{2}$ lbs. per bushel.

Simeon Roberts, of Columbus, Ont., reports a yield of 205 lbs. He says: "Sown broadcast 21st April on clay loam; size of plot, 20 x 230 feet; harvested 17th August;

no rust; no smut; a good stiff straw; two days earlier than the Egyptian." The weight of the sample returned was $41\frac{1}{2}$ lbs. per bushel.

J. D. Wager, of Enterprise, Ont., had 190 lbs., and says: "Sown broadcast 20th April on clay loam; size of plot, 15 x 35 yards; harvested 3rd August; no rust; no smut; big straw; about a week earlier than the Banner sown same date." Weight of sample returned, 39 lbs. per bushel.

L. Cameron, of Elder's Mills, Ont., had 162 lbs. He says: "Sown broadcast 21st April on clay loam; size of plot, $2\frac{1}{2}$ x 4 rods; harvested first week in August; no rust; no smut; the best straw and oats that I ever had, and as early as any; I have been farming 35 years." Weight of sample returned was $39\frac{3}{4}$ lbs. per bushel.

A. Hobson, of Killarney, Man., had a yield of 170 lbs. He says: "Sown in drills 27th April on sandy loam; size of plot, $\frac{1}{20}$ th of an acre; harvested 10th August; there was some rust; no smut; straw very strong and tall, and lodged badly." No sample received.

John Fizell, of Holmfild, Man., had 136 lbs., and says: "Sown by hand 23rd April on heavy black loam; size of plot, 25 x 72 feet; harvested 15th August; rusted badly; no smut; straw very heavy, about 6 feet high. I believe it was the heaviest crop cut in Manitoba; ripened a week earlier than Egyptian." No sample received.

J. J. Porte, of Boharm, N.W.T., had a crop of 98 lbs. He says: "Sown in drills 24th April, on loamy soil; size of plot, 3 x 100 yards; rusted a little; a few heads of smut; straw stout, $4\frac{1}{2}$ feet long." Weight of sample returned, $41\frac{3}{4}$ lbs. per bushel.

C. Elton, Pincher Creek, N.W.T., had a yield of 91 lbs., and says: "Sown broadcast 24th April on sandy loam; size of plot, 39 x 39 feet; harvested 23rd September; very little rust and a little smut; straw strong, $4\frac{1}{2}$ feet high." Weight of sample returned, $37\frac{1}{2}$ lbs. per bushel.

Thomas James, of Spulmacheen, B.C., had a crop of 289 lbs. from 3 lbs. of seed. He says: "Sown broadcast 30th April on sandy loam; size of plot about $\frac{1}{4}$ th of an acre; harvested 11th August; no rust; a little smut; straw very good; about one week earlier than White Cave." The weight of the sample returned was $37\frac{1}{2}$ lbs. per bushel.

Flying Scotchman.

This is a white oat, a little longer in the kernel than Prize Cluster or Victoria Prize, which has made a good record for itself, having proven generally prolific, healthy and vigorous. At the Central Experimental Farm it has varied from 48 bushels and 26 lbs. per acre to 29 bushels and 7 lbs. At Nappan, N.S., the experimental plots have returned at the rate of 95 bushels 10 lbs. per acre, and at Agassiz, B.C., 58 bushels 8 lbs. per acre.

John Clark, of Alberton, P.E.I., had a yield of 118 lbs. from 3 lbs. of seed. He says: "Sown broadcast 29th April on heavy clay soil; size of plot, $12\frac{1}{2}$ x 15 yards; harvested 25th August; no rust; no smut; straw large and bright; much earlier than any other sort." The sample returned weighed $38\frac{1}{2}$ lbs. per bushel.

J. B. R. Lea, of Victoria, P.E.I., had 89 lbs., and reports as follows: "Sown broadcast 23rd May on sandy loam at the rate of $2\frac{1}{2}$ bushels to the acre; harvested 29th August; no rust; no smut; straw a fine growth, but broke down a week before harvest; earlier than most other sorts." The sample returned weighed $44\frac{1}{2}$ lbs. per bushel.

Josiah Wood, M.P., of Sackville, N.B., had a crop of 78 lbs., and says: "Sown broadcast 16th May on sandy loam; size of plot, 13 x 120 feet; harvested 10th September; a little rust; no smut; straw tall and very stout; ripens earlier than other sorts we have been sowing. Our neighbours' hens and geese got in to this grain, otherwise we should have had a much larger yield." The sample returned weighed 36 lbs. per bushel.

H. Sabeau, of New Tuskett, N.S., had a yield of 125 lbs., and writes thus: "Sown broadcast 3rd May on gravelly loam; size of plot, 20 x 33 paces; harvested 12th

August; no rust; a little smut; straw stout; think very favourably of this oat, but it is not so heavy as Prize Cluster." The weight of the sample returned was 36½ lbs. per bushel.

F. Beaton, of Alexander, N. S., had 86 lbs., and says: "Sown broadcast 12th May on dry, loose soil; size of plot, 5 square rods; harvested 4th September; no rust; no smut; straw heavy and perfectly sound; a week later than Prize Cluster. The samples of Prize Cluster and Flying Scotchman are the best oats I ever raised." The weight of the sample returned was 39 lbs. per bushel.

Julien Beauvais, of Ste. Adèle, Que., had a crop of 138 lbs. from 3 lbs. of seed, and says: "Sown broadcast 10th May, on yellow soil; size of plot, 20 x 90 feet; harvested 27th August; no rust or smut; straw good and clean; is earlier and heavier than other varieties." The sample returned weighed 41½ lbs. per bushel.

Isidore Plouffe, of Ste. Agathe, Que., had a yield of 129 lbs. He says: "Sown broadcast 15th May, on yellow soil; size of plot, 20 x 40 feet; harvested 20th August; no rust; no smut; straw long, fine and strong; ripened 15 days sooner than our other sorts; I counted 220 grains in one head." The weight of the sample returned was 38½ lbs. per bushel.

Revd. S. A. Moreau, of Ste. Agathe, had a crop of 100 lbs. and says: "Sown broadcast 12th May, on yellow soil, well manured; size of plot, 18 x 40 feet; harvested 13th August; no rust or smut; straw long and very good; earlier than ordinary sorts. Farmers here preserve their yield from the samples as something very precious, and thank the experimental farm, as I do myself." The weight of the sample returned was 37½ lbs. per bushel.

A. R. McTavish, of Loch Garry, Ont., had a yield of 190 lbs. He writes thus: "Sown broadcast 29th April; on sandy soil, mixed with gravel; size of plot, 27 x 210 feet; harvested 14th August; no rust; no smut; straw bright and stands well; ripens earlier than any other sort I had. I am very well pleased with the oats." The weight of the sample returned was 38½ lbs. per bushel.

John Lawrence, of Mandamin, Ont., had 166 lbs., and says: "Sown broadcast 22nd April, on sandy loam; size of plot, 360 square yards; harvested 8th August; no rust; no smut; straw very heavy, half lying down; four or five days later than Prize Cluster." The weight of the sample returned was 38½ lbs.

Jas. Callagher, of Bethany, Ont., had 135 lbs. He says: "Sown broadcast 23th April, on clay loam; size of plot, 5 x 50 yards; harvested 10th August; no rust; no smut; straw bright and strong; ripens six to eight days earlier than my other oats, and heavier in crop and weight of grain; a remarkably fine variety of oats for this part; I think they will prove to be the leading oat here." The weight of the sample returned was 39¾ lbs. per bushel.

John Clarkson, of Elkhorn, Man., had a yield of 170 lbs. He says: "Sown broadcast 13th April, on black sandy soil; size of plot, 480 square yards; harvested 20th August; no rust; no smut; straw 4 feet long, medium thickness; compares favourably with other oats, and yields better than any other sort I have." The weight of the sample returned was 34 lbs. per bushel.

Charles Gilroy, of Regina, N.-W.T., had a yield of 93 lbs., and says: "Sown broadcast 16th April, on heavy clay soil; size of plot, 16½ x 130 feet; harvested 24th August; no rust; no smut; straw coarse, and about 44 inches long." The weight of the sample returned was 38¾ lbs. per bushel.

Bonanza.

This is another white oat of fair promise, but closely resembles Prize Cluster and Victoria Prize. On the Central Experimental Farm it gave a crop in 1891 of 23 bushels and 30 lbs. per acre; at Nappan, N.S., 77 bushels 32 lbs.; at Indian Head, 72 bushels 22 lbs., and at Agassiz, B.C., 37 bushels 12 lbs.

Wm. G. Taylor, of North Bedeque, P.E.I., had a crop of 84 lbs., and says: "Sown broadcast 11th May, on light soil; size of plot, 210 square yards; harvested 20th August; no rust; no smut; straw coarse and bright; ripens about same time as Prize Cluster, and about ten days earlier than Egyptian. I consider the Bonanza to be

far superior to any other kind of white oats I have ever sown. I took first prize for sample at exhibition in October last." The sample returned was an excellent one, weighing $44\frac{3}{4}$ lbs. per bushel.

George E. Baxter, of Perth Centre, N.B., had a yield of 82 lbs., and says: "Sown broadcast 26th May, on a light loam; harvested the 4th September; no rust or smut; straw large and bright; very early; good yield." The sample returned weighed $38\frac{1}{2}$ lbs. per bushel.

J. R. Taylor, of Rockland, N.B., had $77\frac{1}{2}$ lbs., and reports as follows: "Sown broadcast 23rd May, on rather heavy loam; size of plot, 195 square yards; harvested 8th September; no rust or smut; straw stout and strong; about the same as others as regards earliness of ripening, but the grain is much heavier than what we usually raise here." The sample returned was very fine and weighed $43\frac{1}{4}$ lbs. per bushel.

John R. McKenzie, of Millville, Pictou, N.S., had a yield of 74 lbs., and says: "Sown in drills 15th May, on gravelly loam; size of plot, about 40 feet square; harvested 25th August; no smut or rust; straw strong; did not lodge; the earliest I have ever sown, and never had such a yield before. If these oats do not run out they will be a great acquisition." The sample returned was an excellent one, weighing $43\frac{1}{2}$ lbs. per bushel.

Henry C. Sabeau, New Tuskett, N.S., had 70 lbs., and says: "Sown broadcast 1st May, on gravelly loam; size of plot, 35 x 48 feet; harvested 18th August; some rust; no smut; straw stout, and stood up well." No sample was received in this instance.

E. Laferrière, of St. Sebastien, Quebec, had a yield of 92 lbs., and says: "Sown broadcast 13th May, on a mixed grey and yellow soil; size of plot, 18 x 126 feet; harvested 13th August; no rust; no smut; straw fairly good; ripened earlier than other varieties." The weight of this sample was also $43\frac{1}{2}$ lbs. per bushel.

William Worden, of St. Paul's Station, Quebec, had 80 lbs., and writes: "Sown broadcast 25th April, on loamy clay soil; size of plot, 7 square rods; harvested 8th August; slightly rusted; no smut; straw coarse; among the earliest, and heavy." The weight of the sample returned was $39\frac{1}{4}$ lbs. per bushel.

L. Cameron, of Elder's Mills, Ont., had a crop of 152 lbs. from 3 lbs. of seed, and says: "Sown broadcast 21st April on clay loam; size of plot, $2\frac{1}{2}$ x 4 rods; no rust; no smut; straw good and clean; I never had a finer yield." The weight of sample returned was 40 lbs. per bushel.

James Calwell, of Varna, Ont., had a yield of 122 lbs. He says: "Sown broadcast 23rd April, on clay loam; size of plot, 540 square yards; date of harvesting not given; no rust or smut; straw a fair length; a little earlier than others." The sample returned in this instance also weighed 40 lbs. per bushel.

Allyn Hobson, of Killarney, Man., had a crop of 170 lbs., and says: "Sown in drills 27th April, on sandy loam; size of plot, $\frac{1}{10}$ of an acre; harvested 10th August; plenty of rust; no smut; straw very strong and tall, but badly broken down." The sample returned weighed 39 lbs. to the bushel.

James Reid, of Carman, Man., had 71 lbs., and says: "Sown in drills 8th May, on black loam; size of plot, 7 rods; no rust; no smut; straw strong and stiff; ripened two weeks earlier than black oats and as early as Prize Cluster. They are the best oats I ever sowed." The sample returned weighed 41 lbs. per bushel.

C. Eaton, of Pincher Creek, N.W.T., had a crop of 89 lbs., and writes: "Sown broadcast 24th April on sandy loam; size of plot, 39 x 39; harvested 22nd September; about 10 per cent slightly rusted; a few heads of smut; straw strong and bright, 5 ft. 3 in. in height; ripens about same date as the Banner and gives about same weight of crop." The sample returned weighed $37\frac{1}{4}$ lbs. per bushel.

L. Zuichon, Port Guichon, B.C., had a yield of 164 lbs. from 3 lbs. of seed, and says: "Sown broadcast 29th April on delta lands; size of plot, 15 x 49 ft.; harvested 15th August; no rust or smut; average weight, good; first class seed." The sample returned was an excellent one, weighing $44\frac{1}{4}$ lbs. per bushel.

J. M. Sweetman, of Chilliwack, B.C., had 85 lbs. He says: "Sown broadcast 17th April on sandy clay soil; harvested 10th August; no smut or rust; straw long

and heavy; ten days earlier than the Banner." The sample returned in this instance was also first-class, weighing $43\frac{1}{2}$ lbs. per bushel.

Banner.

This very promising variety has made a good record for itself during the past season. It is a branching oat, with a long kernel, not very plump or heavy, but very vigorous and productive; on the Central Experimental Farm it has varied in yield on different soils from 87 bushels 22 lbs. to 37 bushels 13 lbs. per acre. At the branch farm at Nappan, N.S., it has given on experimental plots at the rate of 94 bushels 4 lbs. per acre; at Brandon, Manitoba, 81 bushels 33 lbs.; at Indian Head, N.W.T., 86 bushels 24 lbs., and at Agassiz, B.C., 73 bushels 32 lbs. per acre.

A. A. Moore, of Pownal, P.E.I., reports a yield of 136 lbs. from a 3-lb. bag of seed. He says: "Sown broadcast 11th May, on clay loam; size of plot, 12 x 18 yards; harvested 30th August; no rust or smut; straw strong and bright." The weight of the sample returned was $36\frac{1}{2}$ lbs. per bushel.

O. J. McLean, of Little Sands, P.E.I., had $102\frac{3}{4}$ lbs., and says: "Sown broadcast 23rd May on good soil; size of plot, 15 x 125 feet; harvested 9th September; no rust or smut; straw stout and clean. I find these oats to be the best of all I have grown." The sample returned weighed 35 lbs. per bushel.

Walter Piercy, of Manners Sutton, N.B., had a yield of 158 lbs. from 3 lbs. sown. He reports as follows: "Sown 11th May, broadcast, on sandy loam; size of plot, 500 square yards; no rust; some smut; straw 5 feet long; bright yellow. I like the oats well." The sample returned weighed $35\frac{1}{4}$ lbs. per bushel.

A. T. Fawcett, of Sackville, harvested 86 lbs., and says: "Sown broadcast 27th April, on sandy loam; size of plot, 5 x 35 yds.; harvested 24th August; no rust or smut; straw 3 feet long, rather inclined to go down." The weight of the sample returned was $34\frac{1}{2}$ lbs. per bushel.

John Lacey, of West Caledonia, N.S., had 119 lbs. from 3 lbs. of seed, and says: "Sown broadcast 4th May on sandy loam; size of plot 2 rods by 4; harvested 17th August; no rust or smut; straw tall and bright. Not quite so early as some other varieties, but somewhat heavier." No sample was received with this return.

John McBride, of Whitburn, N.S., had a yield of 74 lbs., and says: "Sown broadcast 9th May; size of plot, 1 rod by 8; harvested 9th September; no rust or smut; straw good, heavy and tall. I am pleased with the Banner oats." The sample returned weighed $34\frac{1}{4}$ lbs. per bushel.

Narcisse Barry, of Ste. Anne de la Péraide, Quebec, reports a yield of 202 lbs. He says: "Sown broadcast 20th May; size of plot, 30 x 20 feet; harvested 25th August; no rust or smut; straw good, and notwithstanding it is coarse the animals eat it well; the yield is extraordinary, and in two or three years I can sow my farm with this variety alone." The weight of the sample returned was $31\frac{3}{4}$ lbs. per bushel.

H. Newham, of Upper Thorn Centre, Quebec, had a yield of 100 lbs., and says: "Sown broadcast 5th May on sandy loam; size of plot, 6 x 55 yards; harvested 29th August; no rust; no smut; straw long and white; ripened about the same time as other sorts." The weight of the sample returned was $34\frac{1}{4}$ lbs. per bushel.

B. Bouck, of Inkerman, Ont., reports a yield of 130 lbs. He says: "Sown broadcast 9th May, on gravelly soil; size of plot, 1 rod by 10; harvested 22nd August; no rust or smut; straw coarse." The weight of the sample returned was $35\frac{1}{4}$ lbs per bushel.

Thos. Grant, of Sheffield, Ont., had $127\frac{1}{2}$ lbs., and says: "Sown in drills 4th May, on sandy loam; size of plot, 2 x 62 yards; harvested 14th August; very little rust; no smut; straw pretty strong, $3\frac{1}{2}$ to 4 feet high; about six days later than Flying Scotchman; would have been much heavier if they had not been so much lodged." Weight of sample returned, 34 lbs per bushel.

Geo. Barclay, of Morris, Man., had 103 lbs. He says: "Sown 5th May, on black loam, with press drill; size of plot, 2 x 99 yards; harvested 20 August; no rust or smut; straw strong and stiff; three days later than Prize Cluster, 4 days

earlier than Egyptian; good yielder; stood up well." Weight of sample returned, 36 lbs. per bushel.

A. Hobson, of Killarney, Man., reports a yield of 100 lbs., and says: "Sown broadcast 15th May, on sandy loam; harvested 4th September; no rust or smut; straw strong and clean." Weight of sample returned, 34 lbs. per bushel.

American Triumph.

A few reports have been received, giving the results of the test of samples of this grain. They nearly all speak of the variety as being late, and this agrees with our experience in Ottawa. The largest yield reported from Quebec is 60 lbs., the lowest 33 lbs.; the largest yield from Ontario, 110 lbs., and the lowest 24 lbs.; all the samples returned were deficient in weight. At the Central Experimental Farm it has given a crop of 37 bushels 16 lbs. per acre. At the branch farm, at Nappan, at the rate of 77 bushels 22 lbs.; at Brandon, Man., 59 bushels 26 lbs., and at Agassiz, B.C., 39 bushels 24 lbs. As there are many earlier-ripening varieties which have given on the average much better results, there seems no special reason for continuing the distribution of the American Triumph.

No reports have yet been received relating to the few samples of Egyptian oats distributed.

TWO-ROWED BARLEY.

Prize Prolific (Carter's.)

This useful variety has been widely distributed, and the reports of the past season are on the whole very favourable. In some localities the straw is reported to be weak, a failing which in wet seasons seems to be common to all the two-rowed barleys of the Chevalier type, not because the straw is less stout than other sorts, but because the *pendant* head when weighted with water proves a much greater strain on the straw than do the more upright heads which characterize the Duckbill, Goldthorpe, Italian and other sorts of that class. At the Central Experimental the Prize Prolific barley has yielded in different fields and plots from 33 bushels 18 lbs. to 65 bushels 10 lbs.; at the branch farm, at Nappan, N.S., 50 bushels; at Brandon, Man.; 75 bushels 54 lbs.; at Indian Head, N.W.T., from 45 to 54 bushels 28 lbs., and at Agassiz, B.C., 32 bushels 39 lbs.

A. A. McNeill, of Alberton, P.E.I., had a crop of 125 lbs. from 3 lbs. seed, and says: "Sown broadcast 5th May, on sandy loam; size of plot, 5 x 50 yards; no rust or smut; straw clean and bright; about 5 days earlier than other barley. I never saw better heads and stems; stood up well and ripened even." The sample returned weighed 53½ lbs. per bushel.

Isaac M. Doughart, of Long River, New London, P.E.I., had 100 lbs. He says: "Sown broadcast 27th May on sandy loam; harvested 13th September; no rust or smut; straw bright yellow; ripens no earlier than our own." The sample returned weighed 48¼ lbs. per bushel.

James Friar, of Shediac, N.B., had a yield of 52 lbs., and says: "Sown broadcast 6th June, on sandy loam, on 100 square feet; harvested 16th September; no rust or smut; straw long and stout, but rather soft; ripens later than most varieties." The sample returned weighed 47¾ lbs. per bushel.

Percy Randall, of Bayfield, Antigonish, N. S., had a crop of 51 lbs. He says: "Sown broadcast on 6th June on light sandy loam; size of plot, 7 x 26 yards; harvested 28th September; no rust or smut; straw bright and heavy; compares favourably with other sorts." The sample returned weighed 48¾ lbs. per bushel.

Peter Devoe, of Little Bras d'Or (south side), N.S., had 42 lbs., and says: "Sown broadcast 16th May, on dry sandy soil; harvested 4th September; no rust or smut; straw coarse; ripens about the same time as other sorts." Sample returned weighed 52½ lbs. per bushel.

George Maynard, of St. Foy, Que., reports a yield of 180 lbs. from 3 lbs. of seed. He says: "Sown broadcast 26th May, on gray sticky soil; size of plot, 45 x 135 feet;

harvested 20th August; no rust or smut; straw soft. I prefer the six-rowed barley." The weight of the sample returned was $51\frac{3}{4}$ lbs. per bushel.

E. Lafférière, of St. Sebastien, Que., had 90 lbs., and says: "Sown broadcast 13th May, on grey soil; size of plot, 18 x 126; harvested 18th August; no rust or smut; straw fairly good; is a good weight, but takes longer to ripen than the six-rowed." The sample returned weighed $52\frac{3}{4}$ lbs. per bushel.

S. Rennie, of Millikin, Ont., had 132 lbs., and says: "Sown broadcast 21st April on clay loam; harvested 5th August; no rust or smut; straw very soft and weak; about 2 days later than the Duckbill and about 3 bushels less per acre in yield." Sample failed to reach us.

A. R. McTavish, of Loch Garry, Ont., had a yield of 126 lbs. He says: "Sown broadcast 29th April on sandy soil mixed with gravel; size of plot, 19 x 210 feet; harvested 12th August; no rust or smut; straw long and clean." The sample returned weighed $52\frac{1}{4}$ lbs. per bushel.

Wm. A. Wallis, of Humber, Ont., had a crop of 120 lbs. He says: "Sown in drills 22nd April on good clay loam; size of plot, 8 square rods; harvested 11th August; no rust or smut; straw not so strong as Chevalier or Duckbill, and several days later." The sample returned weighed 52 lbs. per bushel.

Samuel Finnegan, of Freshfield, Man., had a yield of 82 lbs., and says: "Sown in drills 1st May on sandy loam; size of plot, 12 x 87 feet; harvested 22nd August; no rust or smut; straw stiff, and 3 feet long; has eclipsed all other sorts in this neighbourhood." The weight of the sample returned was 54 lbs. per bushel.

James H. Fry, of Virden, Man., had 62 lbs., and says: "Sown broadcast 13th April on sandy loam; size of plot, 2 x 16 rods; harvested 8th August; no rust or smut; straw strong and bright, 39 inches high; three days earlier than other sorts." Weight of sample returned, 54 lbs. per bushel.

L. Zuichon, of Port Guichon, B.C., reports a yield of 158 lbs. from 3 lbs. sown, and says: "Sown broadcast 29th April on delta lands; size of plot, 37 x 43 feet; harvested 15th August; no rust or smut; grain heavier than average; profitable seed for British Columbia." The weight of the sample returned was 55 lbs. per bushel.

J. McSweetman, of Chilliwack, B.C., had 70 lbs., and says: "Sown broadcast 17th April on sandy clay; size of plot, 4 square rods; harvested 10th August; no rust or smut; straw good, but it lodged; is earlier than common." The weight of the sample returned was $51\frac{1}{4}$ lbs. per bushel.

Danish Chevalier.

At the Central Experimental Farm this variety gave crops varying from 41 bushels 40 lbs. to 43 bushels 41 lbs. At the experimental farm at Nappan the crop was 44 bushels 8 lbs.; at Brandon, Man., 68 bushels 16 lbs.; at Indian Head, N.W.T., 44 bushels 20 lbs.; and at Agassiz, B.C., 33 bushels 36 lbs.

A. A. Moore, of Pownal, P.E.I., had a crop of 67 lbs. from 3 lbs. of seed, and says: "Sown broadcast 11th May on clay loam; size of plot, 12 x 18 yards; harvested 25th August; no rust or smut; straw nice and bright, but soft." No sample received.

E. Lunden, of Canterbury, N.B., had a crop of 39 lbs., and says: "Sown in drills 14th May, on sandy loam; size of plot, 17 x 71 feet; harvested 17th August; no rust or smut; straw medium height and good size, but lodged." The weight of the sample returned was 53 lbs. per bushel.

W. Dukeshire, of Maitland, N.S., had a crop of 60 lbs., and says: "Sown broadcast 20th May on light, loamy soil; harvested 16th August; no rust or smut; straw good; it exceeds any other we have." The sample returned weighed $51\frac{1}{4}$ lbs. per bushel.

Allan McLennan, of North Brookfield, N.S., had a yield of 57 lbs., and says: "Sown broadcast 10th May on clay loam; size of plot, 9 square rods; harvested 28th August; no rust or smut; straw rather short; a little later than other sorts." The sample returned weighed $50\frac{1}{2}$ lbs. per bushel.

Pierre Zippens, of Roberval, Lake St. John, Que., reports a yield of 187 lbs. from $2\frac{1}{2}$ lbs. of seed sown, and says: "Sown broadcast 10th June, on clay soil; size of plot, 30 x 40 feet; harvested 15th October; no rust; straw good." The weight of the sample returned was $51\frac{3}{4}$ lbs. per bushel.

J. A. Villeneuve, of Charlesbourg, Que., had a crop of 75 lbs., and says: "Sown broadcast 16th May, on virgin soil; size of plot, 15 x 150 feet; harvested 29th August; no rust or smut; straw ordinary." Weight of sample returned, $50\frac{1}{4}$ lbs. per bushel.

Roderick McLennan, Paisley, Ont., had a yield of 145 lbs. from 3 lbs. sown, and says: "Sown broadcast 1st May, on loamy soil; size of plot, about 10 square yards; harvested 16th August; no rust or smut; very long straw; grain very late, and met with bad weather." Weight of sample sent, $47\frac{1}{2}$ lbs. per bushel.

Robert Davidson, of Bowsville, Ont., had 125 lbs., and says: "Sown broadcast 1st May, on clay soil; harvested 13th August; no rust or smut; straw good; as to time of ripening, just the same as our own." The weight of this sample was 52 lbs. per bushel.

A. Hobson, of Killarney, Man., had a yield of 150 lbs. He says: "Sown in drills 27th April, on sandy loam; size of plot, $\frac{1}{20}$ of an acre; harvested 10th August; no rust or smut; a fine straw, but lodged badly." The weight of the sample returned was $52\frac{1}{4}$ lbs. per bushel.

John Clarkson, of Elkhorn, Man., had 108 lbs., and says: "Sown broadcast 13th April, on black sandy soil; harvested 21st August; no rust or smut; straw medium length; later in ripening than six-rowed, and 20 bushels per acre less than Prize Prolific last year." Weight of sample returned, $50\frac{3}{4}$ lbs. per bushel.

T. G. Cooney, of Wascana, N.W.T., reports a yield of 263 lbs. from 3 lbs. of seed, and says: "Sown in drills 27th April, on heavy clay; size of plot, $1\frac{1}{2}$ x 16 rods; harvested 25th August; no rust or smut; straw medium height, partly lodged. I think this a very excellent barley for this part of the country." The sample returned weighed 51 lbs. per bushel.

George Byers, of Red Deer, N.W.T., had 68 lbs. He says: "Sown broadcast, 20th April, on sandy loam; size of plot, 144 square yards; harvested 14th August; no rust; about 1 per cent of smut; straw bright and clean, but inclined to lodge." The weight of the sample returned was $52\frac{1}{4}$ lbs. per bushel.

Hugh Nichol, of Mission, B.C., had a crop of 56 lbs., and writes: "Sown broadcast 10th April, on sandy loam; size of plot, 10 x 12 yards; harvested 1st August; no rust or smut; straw fine." No sample received.

Golden Melon.

The yield of this variety has varied on different plots on the Central Experimental Farm from 21 bushels 9 lbs. to 43 bushels and 40 lbs. per acre. At Nappan the yield has been 52 bushels 4 lbs. per acre; at Indian Head, N.W.T., 42 bushels 10 lbs., and at Agassiz 36 bushels and 2 lbs. per acre.

C. A. Hardy, of Joggin Bridge, N.S., had a yield of 138 lbs., and says: "Sown broadcast 6th May, on light dry soil; size of plot, 11 square rods; harvested 24th August; no rust or smut; straw brittle; I think this is the largest yield of barley in this neighbourhood." Weight of the sample returned, $50\frac{1}{4}$ lbs. per bushel.

S. Audette, of St. Ubalde, Que., had a yield of 115 lbs. He says: "Sown broadcast 20th May, on black soil; size of plot, 20 x 180 feet; harvested 1st September; no rust or smut; straw good; it seems finer than other sorts." Weight of sample returned, $47\frac{1}{2}$ lbs. per bushel.

L. Langevin, Baie des Pères, Que., had a crop of 99 lbs., and writes: "Sown broadcast 27th April, on sandy clay soil; size of plot, nearly 30 feet square; harvested 27th August; straw of good growth; a little late, but a heavy crop." Weight of sample returned, 49 lbs. per bushel.

J. S. McDonald of Ripley, Ont., had a yield of 110 lbs. from 3 lbs. of seed. He says: "Sown broadcast 17th May, on clay loam; harvested 23rd August; no rust or smut; straw of good size; two weeks later than six-rowed; harvest season very wet." Weight of the sample returned $50\frac{1}{2}$ lbs. per bushel.

A. A. Moody, of Brock Road, Guelph, Ont., had 83½ lbs., and writes: "Sown broadcast 6th May, on clay loam; size of plot, 27 x 66 feet; harvested 22nd August; no smut; no rust; straw a good length; head very long." No sample received.

A. Ferguson, of Virden, Man., had a crop of 65 lbs., and says: "Sown broadcast 20th April, on heavy black loam; size of plot, 7 x 216 feet; harvested 19th August; no smut; no rust; straw very good and bright; a few days earlier than Danish Chevalier, and stood up better." No sample received.

James Speers, of Wapella, N.W.T., had a crop of 72 lbs. He says: "Sown broadcast 14th April, on black loam; size of plot, 160 square yards; harvested 6th September; no rust or smut; straw very soft. Ten days later than another variety I had." Sample received weighed 48½ lbs. per bushel.

Webb's Kinver Chevalier.

A supply of this fine variety of barley, which has carried off so many prizes in England, was purchased early in the year from Edward Webb & Son, of Wordsley, England. On arrival part of the seed was divided among the experimental farms for test; the remainder furnished material for a limited distribution among farmers in the several provinces of the Dominion. At the Central Experimental Farm the crop on one field was 42 bushels and 36 lbs. per acre, on another 58 bushels and 2 lbs. At Nappan, N. S., the yield was 48 bushels 16 lbs.; at Brandon, Man., 61 bushels 17 lbs., and at Agassiz, 20 bushels and 40 lbs. per acre.

M. D. Blue, of Little Sands, P.E.I., had a yield of 42 lbs. from 3 lbs. of seed, and says: "Sown broadcast 4th June, on clay land; size of plot, 10 x 20 yards; harvested 9th September; no rust or smut; straw white. I believe it is suitable for this locality." The weight of the sample returned was 50½ lbs. per bushel.

David Cunningham, of Hanwell, N.B., had a crop of 76 lbs. He says: "Sown broadcast 12th May, on black loam; size of plot, 18 x 75 feet; harvested 21st August; no rust or smut; straw good and strong. I think this will be a good kind for this place." Weight of sample returned, 53½ lbs. per bushel.

John Lacey, of Caledonia, N. S., had 56 lbs., and says: "Sown broadcast 4th May, on sandy loam; size of plot, 1½ x 4 rods; harvested 14 August; no rust or smut; straw very short and bright; not so early by five days as other barley grown here." The weight of the sample returned was 53 lbs. per bushel.

B. Paquette, of St. Nicholas, Quebec, had a yield of 78 lbs. He says: "Sown broadcast 12th May, on dry soil; size of plot, 10 x 160 feet; harvested 29th August; no rust or smut; straw very good. This grain is to be recommended; the yield is very satisfactory." Sample returned weighed 52 lbs. per bushel.

R. W. Ralph, of Shawville, had 70 lbs., and reports as follows: "Sown broadcast 1st May, on sandy loam; size of plot, 204 square yards; harvested 6th August; no rust or smut; straw very short." The weight of the sample returned was 52½ lbs. per bushel.

Walter H. Percival, of Burritt's Rapids, Ont., reports the extraordinary yield of 336 lbs. He says: "Sown by hand 9th April, on clay loam; size of plot, 3 rods square; harvested 17th August; no rust or smut; straw long and bright, standing up well. I sowed it very thin; it was a heavy crop. I like it remarkably well and will sow no other barley next year." The weight of the sample returned was 54½ lbs. per bushel.

John McCullam, of Belgrave, Ont., had a crop of 103 lbs., and says: "Sown broadcast 25th April, on dark clay loam (date of harvesting is not given); no rust of any account; no smut; straw a good length, bright and strong; cut same time as the Prize Prolific. I think this is a very good barley." The sample sent back weighed 54 lbs. per bushel.

Goldthorpe.

This variety of two-rowed barley was imported from James Carter & Co., of London, England, two years ago. It very much resembles the Duckbill in habit of growth, but the grain is said to be superior, with a thinner skin on the kernel. The

crop has varied on different soils on the Central Experimental Farm, from 49 bushels 28 lbs. to 29 bushels and 6 lbs. per acre. On the Nappan N.S., farm it has yielded at the rate of 47 bushels per acre; at Brandon, Man., 65 bushels 21 lbs.; and at Agassiz, B.C., 42 bushels and 4 lbs. per acre.

James T. Barnes, of Sussex, N. B., had a crop of 113 lbs., and says: "Sown broadcast 2nd June, on clayey soil; harvested 15th September; no rust or smut; straw short, but clean and bright; much later than six-rowed." Weight of sample returned, 48 lbs. per bushel.

William C. Burgman, of Tatamagouche, N.S., had 48 lbs., and says: "Sown broadcast 15th June, on intervale soil; harvested 22nd September. A heavy wind a week before harvest blighted it some; no smut; straw very heavy; two weeks later than six-rowed. I think it is a very fine barley."

A. Lacroix, of Scott's Junction, Que., had a yield of 122 lbs. from 3 lbs. of seed. He says: "Sown broadcast 1st June, on clay soil; plot not measured; harvested early in August; no rust or smut; straw of good quality. I found it superior to other sorts." The weight of the sample returned was 50 lbs. per bushel.

Louis Fournier, of St. Andrews, Que., had a crop of 100 lbs., and says: "Sown broadcast 20th May, on loamy clay; size of plot, 36 x 45 feet; (date of harvesting not given); no rust or smut; straw good." Weight of sample returned, 51 lbs. per bushel.

Samuel A. Zinkinson, of Ashton, Ont., had a crop of 98 lbs., and says: "Sown broadcast 29th April, on clay loam; size of plot, 7 x 21 yards; no rust or smut; straw long and strong." No sample received.

Chas. Scott, White Oak, Ont., had a yield of 90 lbs., and says: "Sown in drills 2nd May, on clay loam; size of plot, $6\frac{1}{2}$ x 165 feet; harvested 10th August; a little rust; no smut; straw long, with heavy heads." Weight of sample returned, $50\frac{1}{2}$ lbs. per bushel.

J. B. Clabb, of Melita, Man., had a yield of 150 lbs. He says: "Sown broadcast 12th May, on clay loam; harvested 12th September; no rust or smut; straw very bright; stood erect. There would have been fully 200 lbs., but for the friendliness of my neighbour's cow." No sample received.

A. Hobson, of Killarney, Man., had 120 lbs., and says: "Sown in drills 27th April, on sandy loam; size of plot, $\frac{1}{20}$ th of an acre; harvested 10th August; no rust or smut; straw clean and strong; stood up well. This is my favourite barley for this part." The weight of the sample returned was 51 lbs. per bushel.

Henry M. Hayward, of Hayward, N.W.T., had a crop of 75 lbs. He reports as follows: "Sown broadcast 16th May, on black loam, with gravelly sub-soil; size of plot, 5 x 20 yards; harvested 4th September; no rust or smut; straw long and very strong, with ears remarkably upright. Is earlier and much stronger than Chevalier or Prize Prolific; the two latter were very badly laid by a storm, but Goldthorpe growing alongside stood up well." The weight of the sample returned was $50\frac{1}{2}$ lbs. per bushel.

Francis Pow, of Wolseley, reports a yield of about a bushel, and says: "Sown broadcast 25th April, on black loam; size of plot, 5 x 7 yards; harvested 5th September; no rust; very little smut; straw long and bright; ten days later than six-rowed barley in same field." The weight of sample returned was $54\frac{1}{2}$ lbs. per bushel.

Saale.

This well known and highly esteemed sort was imported from England two years ago, and tested in 1890 on the Central Farm, when it gave very good returns. During 1891 it has yielded on this farm 47 bushels and 20 lbs. per acre. At the branch farm at Nappan, N.S., the yield has been 51 bushels 32 lbs., and at Agassiz, B.C., 33 bushels 26 lbs.

W. J. Fraser, of North River, Lot 32, P.E.I., had a yield of 106 lbs. and says: "Sown broadcast 2nd May, on sandy loam; size of plot, 8 x 12 yards; harvested 26th August; no rust or smut; straw strong and clean; matures early. This barley

is the best I have ever harvested. I think it will suit our climate well." The weight of the sample returned was $50\frac{1}{2}$ lbs. per bushel.

Allan McLean, of Cornwall, P.E.I., had 76 lbs. He writes: "Sown broadcast 7th May, on clay loam; size of plot, 3 x 35 yards; harvested 22nd August; no rust or smut; straw very bright and good. I gave this sample a fair trial, no better than when sowing a large quantity." The weight of the sample returned was $53\frac{1}{2}$ lbs. per bushel.

Honoré Lorlie, of the Quebec Seminary, Quebec, had a crop of 153 lbs. He says: "Sown broadcast 9th May, on grey soil; size of plot, 24 x 89 feet; harvested 10th August; no rust or smut; straw of medium strength, good and bright. I think this barley suitable for this district, and very profitable." The weight of the sample returned was $52\frac{3}{4}$ lbs. per bushel.

Pierre Mompotel, of Beauharnois, Que., had a yield of 102 lbs., and says: "Sown broadcast 24th April, on grey soil; size of plot, 14 x 100 feet; harvested 14th August; no rust or smut; straw good. Ripens sooner than the other two-rowed I had from you, and is heavier." Weight of sample returned, $50\frac{1}{4}$ lbs. per bushel.

John Marion, of Marion, Ont., reports a yield of 143 lbs., and says: "Sown broadcast 6th May on clay soil; size of plot, 20 x 50 yards; harvested 22nd August; no rust or smut; straw very long." The sample returned weighed 50 lbs. per bushel.

George Hume, of Ashgrove, Ont., had a crop of 92 lbs. He says: "Sown broadcast 25th April, on clay soil; size of plot, 18 x 105 feet; harvested 15th August; no rust or smut; straw, long, good and stiff; ten to twelve days later than six-rowed, but a much heavier crop." The weight of the sample returned was $53\frac{1}{2}$ lbs. per bushel.

Chas. E. Ivans, of Virden, Man., reports a yield of 232 lbs., and says: "Sown in drills 14 inches apart 16th April, on deep black loam; size of plot, 540 square yards; harvested 24th August; no rust or smut; straw long and soft; was badly laid by rain storm." Weight of sample received, $49\frac{3}{4}$ lbs.

SPRING WHEAT.

Ladoga.

This early-ripening wheat continues to give good returns in many parts of the Dominion, succeeding best on comparatively light soils and in those districts where the summer season is short. On the Central Experimental Farm the yield has varied on different soils from 28 bushels 32 lbs. to 21 bushels 7 lbs.; at the branch farm, in Nappan, N.S., it has given a return of 30 bushels; at Brandon, Man., it has yielded 33 bushels; at Indian Head, on different plots, from 36 bushels 46 lbs. to 33 bushels 20 lbs., and at Agassiz, B.C., 18 bushels and 20 lbs. per acre.

Peter Chaisson, of Tignish, P.E.I., had a yield of 95 lbs. from 3 lbs. of seed. He says: "Sown by hand 20th May, on dry, loamy soil; size of plot, 21 x 60 ft., harvested, 28th August; no rust or smut; straw 5 ft. long, coarse and bright. I find the Ladoga ripens 9 days earlier than any other kind I have, and yields heavier." The weight of the sample returned was 61 lbs. per bushel.

M. D. Blue, of Little Sands, P.E.I., had a crop of $73\frac{1}{2}$ lbs., and reports as follows: "Sown broadcast 4th June on clay land; size of plot, 200 square yards; no rust; some smut; harvested a week earlier than other sorts sown same day. I believe it is suitable for this locality." The sample returned weighed 60 lbs. per bushel.

A. T. Fawcett, of Sackville, N.B., harvested 94 lbs., and writes: "Sown broadcast 27th April, on sandy loam; size of plot, 5 x 35 yards; no rust; considerable smut; straw bright and good, 3 ft. high; earlier than any other kind grown here. I am well pleased with the grain." The weight of the sample returned was $61\frac{1}{4}$ lbs. per bushel.

George Oulton, of Little Shemogue, N.B., reports a yield of 78 lbs., and says: "Sown broadcast 8th May, on clay loam; size of plot, 15 x 160 ft.; harvested 28th August; no rust or smut; good straw; seven days earlier than White Fife; yields

about twice as much ; I am well pleased with the wheat." The sample returned weighed 63 lbs. per bushel.

Walter Lawrence, of Cheticamp, N.S., had a crop of 135 lbs. He says: "Sown in drills 12th May, on dry, sandy soil ; size of plot, $316\frac{2}{3}$ square yards ; harvested 4th September ; no rust on grain, a little on straw ; no smut ; straw long and fairly strong." Sample returned weighed 60 lbs. per bushel.

A. Thomas, Milford, N.S., reports a yield of 110 lbs., and says: "Sown broadcast 22nd April, on sandy loam ; size of plot, $3\frac{1}{2} \times 5\frac{1}{2}$ rods ; harvested 25th August ; no rust or smut ; straw very stout ; ripens earlier than any other wheat." The sample returned weighed 63 lbs. per bushel.

James Cuthbertson, of Maple Ridge, Que., reports a yield of 221 lbs. He says: "Sown in drills 8th May, on clay loam ; size of plot, 13×30 yards ; harvested 18th August ; no rust or smut ; eight days earlier than White Fife, and a good deal heavier." The sample returned weighed $60\frac{1}{2}$ lbs. per bushel.

R. Langlais, St. Philip, Que., had a yield of 114 lbs., and writes as follows: "Sown broadcast 12th May, on sandy soil ; harvested 15th August ; no rust or smut ; straw long and white. This wheat is superior in earliness and weight." No sample received.

F. H. Doyle, of Lindsay, Ont., had a crop of 84 lbs., and says: "Sown broadcast 22nd April, on clay loam ; harvested 5th August ; no rust or smut ; straw bright and stiff ; about one week earlier in ripening than others. This wheat suits the land here well." The sample returned weighed $59\frac{3}{4}$ lbs. per bushel.

James McGahey, of Eden Valley, Ont., had 76 lbs. He says: "Sown broadcast 20th April, on heavy clay soil ; size of plot, 20×60 feet ; harvested 19th July ; no rust ; a little smut ; straw stiff and good ; was ripe 12 days earlier than Colorado sown same day ; it will suit this land well." The sample returned weighed $61\frac{1}{4}$ lbs. per bushel.

Wm. Smith, of Griswold, Man., had a crop of 85 lbs., and says: "Sown broadcast 24th April, on sandy loam ; size of plot, 25×80 feet ; no rust ; very smutty ; straw long, and fairly strong growth. It did not ripen quite as early as Red Fife sown same time, and does not weigh as well." Weight of sample returned, 60 lbs. per bushel.

Thos. C. Boulton, of Nelson, Man., had a crop of 75 lbs. He says: "Sown broadcast 24th April, on clay loam ; harvested 21st August ; some rust ; no smut ; straw rather weak ; ripened a week earlier than Red Fife sown same time." Weight of sample returned, $56\frac{1}{2}$ lbs. per bushel.

G. Miller, of Carrsdale, N.W.T., had a yield of 105 lbs. from 3 lbs. of seed. He writes: "Sown broadcast 6th April ; cannot give date of harvesting ; was about a week earlier than White Fife sown same time ; no rust or smut ; straw bright and strong ; it pleases me better than any other I have sown." The sample returned weighed $62\frac{1}{2}$ lbs. per bushel.

Wm. Gobbett, of Dunmore Junction, N.W.T., had a crop of 80 lbs., and says: "Sown broadcast 23rd April, on clay loam ; size of plot, 50×80 feet ; no rust ; some smut ; straw clean, bright and strong, of medium length ; ripened ten days earlier than any other wheat I had." The sample returned weighed $63\frac{1}{2}$ lbs. per bushel.

L. Zuichon, of Port Guichon, B.C., had a yield of 143 lbs. from 3 lbs. of seed. He says: "Sown broadcast 29th April, on delta land ; size of plot, 15×49 feet ; harvested 20th August ; no rust or smut ; straw light." The sample returned weighed 64 lbs. per bushel.

John Callaghan, of Port Hammond, B.C., had 66 lbs., and says: "Sown broadcast 13th April, on sandy loam ; size of plot, 20×80 feet ; harvested 2nd August ; some smut ; straw fine." The weight of the sample returned was $62\frac{1}{2}$ lbs. per bushel.

Campbell's White Chaff.

This variety of spring wheat, so promising for the eastern provinces, has again proved very productive. It is not, however, as yet a variety to be recommended for

Manitoba or the North-West Territories. It is too soft, and lacks that proportion of gluten which would make strong flour. On this account but very few samples have been sent to the western plains—only sufficient to test its productiveness there. At the Central Experimental Farm the crop has varied from 47 bushels and 50 lbs. per acre to 25 bushels and 23 lbs. At Nappan, N.S., it has yielded at the rate of 37 bushels 20 lbs.; at Brandon, Man., 43 bushels 45 lbs.; at Indian Head, on different plots, from 52 bushels to 33 bushels 56 lbs.; and at Agassiz, B.C., 21 bushels 10 lbs.

W. J. Fraser, of North River, Lot 32, P.E.I., had a yield of 90 lbs. from 3 lbs. of seed, and says: "Sown broadcast 2nd May, on sandy loam; size of plot, 8 x 12 yards; harvested 26th August; no rust or smut; straw bright and strong; ripens about the same time as White Russian. It is quite a success with me." The sample returned weighed $60\frac{1}{2}$ lbs. per bushel.

George McDougall, of Bangor, P.E.I., had 87 lbs. He says: "Sown broadcast 25th May, on rich sandy loam; size of plot, 160 square yards; harvested 7th August. A slight rust on part of crop; no smut; straw strong growth; none broken or lodged; ripened five days before White Russian." The weight of the sample returned was $62\frac{1}{2}$ lbs.

J. B. Hamblen, of Pictou, N.S., reports a yield of 120 lbs. from 3 lbs. of seed. He says: "Sown broadcast 7th May, on sandy loam; size of plot, 30 x 80 feet; harvested 29th August; no rust or smut; straw $4\frac{1}{2}$ feet high; does not ripen any earlier than other sorts, but gives a heavier yield." The weight of sample returned was $56\frac{1}{2}$ lbs. per bushel.

R. D. Ross, of Bayview, N.S., had a crop of 70 lbs., and says: "Sown broadcast 7th May, on clay land; harvested 26th August; no rust; some smut; straw bright and very strong; eight days earlier than White Fife, sown same day. I consider this a very good variety of wheat. I took first prize at provincial exhibition at Halifax for best bushel white spring wheat with Campbell's White Chaff.

E. Lafférière, of St. Sébastien, Que., had a yield of 100 lbs. from 3 lbs. of seed. He says: "Sown broadcast 13th May, on grey soil; size of plot, 18 x 171 feet; harvested 31st August; no rust; some heads of smut; straw fairly good; ripened five or six days later than a bearded sort which I sowed. This which you sent is preferable." The sample returned weighed $61\frac{1}{4}$ lbs. per bushel.

R. A. Ralph, of Shawville, Que., had 90 lbs., and says: "Sown broadcast 1st May, on sandy loam; size of plot, 245 square yards; 1 bushel per acre; harvested 6th August; no rust or smut; straw short, clean and white; ripened about 6 days earlier than White Russian sown beside it, and I think yields about half as much more. I am proud of my wheat; would not take \$5 for what I have from the 3 lbs." The weight of the sample returned was $61\frac{1}{2}$ lbs. per bushel.

James McGuire, of Brinston's Corners, Ont., had a yield of 140 lbs. He writes: "Sown broadcast 22nd April, on gravelly soil; size of plot, 20 x 160 feet; harvested 8th August; no rust; a few heads of smut; straw good; is better than our own wheat grown alongside of it." The weight of the sample returned was 61 lbs. per bushel.

James Adams, of Newcastle, Ont., had 130 lbs., and says: "Sown broadcast 17th April, on clay loam; size of plot, 40 x 120 feet; harvested 10th August; no rust or smut; straw good; ripens early; a good wheat." The weight of the sample in this case was $60\frac{1}{2}$ lbs. per bushel.

J. D. Wager, of Enterprise, Ont., had a crop of 92 lbs. He says: "Sown broadcast 17th April, on clay loam; size of plot, 15 x 30 yards; harvested 3rd August; no rust or smut; straw short, being parched by drought; about a week earlier than Fife wheat sown in same field." Weight of sample returned, 62 lbs. per bushel.

John Menary, of Holmfild, Man., had a crop of 75 lbs., and says: "Sown in drills 7th April, on clay loam; size of plot, 9 x 160 feet; badly rusted; a little smut; straw long; 8 days earlier than Red Fife; will try it again." No sample received.

Thomas James, of Spulmacheen, B.C., reports the extraordinary yield of 454 lbs. from 3 lbs. of seed. He says: "Sown by hand 30th April, on sandy loam; size of plot, $\frac{1}{8}$ of an acre; harvested 22nd August; no rust or smut; straw grew rank, and lodged by heavy rain; ripens about the same time as ordinary wheat in this section; a much heavier yielder." The sample returned weighed $62\frac{1}{4}$ lbs. per bushel.

Hector Ferguson, of Port Haney, B.C., had a crop of about 100 lbs., and says : "Sown broadcast 9th May, on alluvial deposit; size of plot, about 50 square yds.; harvested 9th September; no rust; a little smut; straw strong and very good; about seven days later than the Ladoga. This is one of the best varieties I have seen, and yields far better than Ladoga or Red Fife." The sample returned weighed 61 lbs. per bushel.

Red Fife.

The Red Fife as grown in the Canadian North-West is one of the best wheats which the world produces. As grown there it is of the highest quality; is productive, and comparatively free from rust; when grown in the eastern provinces it is much less desirable. At the Central Experimental Farm it has during the last year produced a crop of 22 bushels and 25 lbs. per acre. At the experimental farm at Brandon, Man., it has varied on different soils from 29 bushels and 40 lbs. to 52 bushels 55 lbs.; at Indian Head, N.W.T., from 38 bushels 20 lbs. to 51 bushels 10 lbs.; and at Agassiz, B.C., it has yielded 21 bushels and 40 lbs. per acre.

James Boulter, of Little Pierre Jacques, P.E.I., had a crop of 70 lbs., and says: "Sown broadcast 12th May, on dry hardwood land; size of plot, $\frac{1}{2}$ acre; harvested 10th September; some rust; no smut; straw rusty in spots. I think it will do well here on a dry season, but if wet I think it will rust." Weight of sample received, 61 lbs. per bushel.

John Rutherford, of Tweedside, N.B., had a yield of 96 lbs. from 3 lbs. of seed, and says: "Sown broadcast 20th May, on dark heavy loam; harvested 20th September; no rust or smut; straw bright, tall, and stood up well." No sample was received.

John Corregan, of Caledonia, N.S., had 80 lbs. He says: "Sown broadcast 21st May, on heavy soil; size of plot, 2 x 6 rods; harvested 8th September; no rust or smut; straw heavy and coarse." The sample returned weighed 61 lbs. per bushel.

P. Beauchamp, of Valencay, Que., had a crop of 40 lbs., and says: "Sown broadcast 8th May, on clay soil; size of plot, 15 x 100 feet; harvested 4th September; a little rust or smut; straw medium." The sample returned weighed 59 lbs. per bushel.

Augustine Doyon, of St. Frederick Station, Que., had a yield of 38 lbs. He says: "Sown broadcast 15th May, on sandy soil; harvested 3rd September; no rust or smut; straw good and white." The weight of the sample returned was 62 $\frac{1}{2}$ lbs. per bushel.

John Leach, of Cape Amable, Ont., had a yield of 60 lbs. He says: "Sown broadcast 4th May, on sandy loam; size of plot, 11 x 30 yards; harvested 10th September; no rust or smut; straw short and stiff." The weight of this sample was 61 lbs. per bushel.

Ernest Morgan, of Kerwood, Ontario, reports also a yield of 60 lbs., and says: "Sown in drills 28th April, on clay loam; size of plot, 12 x 165 feet; harvested 10th August; no rust or smut; straw bright and clean, and a good length." This was cut before it was ripe, and the sample returned was shrunken, and weighed 57 $\frac{1}{4}$ lbs. per bushel.

MULTIPLIER PEAS.

This promising variety of pea, which has produced very good crops on the experimental farms, was distributed in limited quantity for test.

Wm. Clark, of North Wiltshire, P.E.I., had a crop of 60 lbs. from 3 lbs. of seed, and says: "Sown 30th May; cut 15th September." The weight of the sample returned was 65 $\frac{1}{2}$ lbs. per bushel.

J. R. Taylor, of Port Elgin, N.B., had 100 lbs. He says: "Sown 6th May, on loamy soil; size of plot, 14 x 100 feet." Date of harvesting is not given. The weight of the sample returned was 64 lbs. per bushel.

W. J. Renyston, of Harmony Mills, N.B., had a crop of 90 lbs., and says: "Sown 2nd May, on loamy soil; harvested 15th August." Weight of sample returned, 66 $\frac{3}{4}$ lbs. per bushel.

John Smith, of Indian Brook, N.S., had a yield of 80 lbs., and says: "Sown 12th June, on dry soil; size of plot, 80 x 100 feet; harvested 16th September." The weight of the sample returned was $66\frac{3}{4}$ lbs. per bushel.

Donald McInnes, of North Branch, Baddeck (C.B.), N.S., had also a yield of 80 lbs. He says: "Sown 28th May, on rich deep soil; size of plot, about 2 square rods; harvested 12th September." The sample returned weighed $65\frac{1}{2}$ lbs. per bushel.

Denis Côté, of La Baie, Que., reports a yield of 216 lbs. from 3 lbs. of seed. He says: "Sown 30th April, on strong heavy soil; size of plot, 12 perches; sown very thin; harvested 15th August; much earlier than varieties here." No sample was returned in this case.

George Myrand, St. Foy, Que., had a crop of 180 lbs., and says: "Sown 8th May, on loamy soil; size of plot, 20 x 90 feet; harvested 28th August; straw long and excellent. I prefer these to any other variety." The sample returned weighed $66\frac{1}{4}$ lbs. per bushel.

Wm. Dunn, of Sweet's Corners, Ont., had a crop of 214 lbs., and says: "Sown 1st May, on clay land; size of plot, 26 x 87 feet; no manure used; harvested 14th August; straw short, and well loaded with pods." I think these peas will do well here. The weight of the sample returned was $64\frac{1}{2}$ lbs. per bushel.

J. C. Duhamel, of Crysler, Ont., harvested 185 lbs. He says: "Sown 15th May, on yellow clay soil; harvested 15th September." No sample received.

Stephen Thompson, of Beaver Creek, Man., had a crop of 58 lbs. He says: "Sown 6th May, on sandy loam; size of plot, 5 x 100 feet; harvested 16th September; the spring was dry and unfavourable for this crop." The sample returned weighed 66 lbs. per bushel.

D. Berger, Langenberg, N.-W.T., had a yield of 90 lbs., and says: "Sown 16th April, on sandy loam; size of plot, 10 x 30 feet; harvested 20th August; has done better than other sorts grown here." The weight of the sample returned was $64\frac{1}{2}$ lbs. per bushel.

INDIAN CORN.

Most of the samples of corn referred to in the list of grain sent out were distributed by J. A. Robertson, Agriculturist of the Experimental Farm and Dairy Commissioner of the Dominion, during a visit paid by him to the Maritime Provinces in June last. Sample bags containing 3 or 4 pounds each were given to any farmers present at the meetings which he attended who were willing to test the value of corn for fodder purposes.

F. G. Borger, of Georgetown, P.E.I., writes on 13th October, 1891: "The fodder corn I got from you is a real success; good judges put the crop at over 20 tons to the acre."

Cyrus Shaw, of New Perth, P.E.I., writes, 5th December: "I take this opportunity of bearing testimony to the success of the corn distributed by you last spring, in our neighbourhood; the result is all that could be desired. I intend to plant 2 acres next spring."

John Hamilton, of New Perth, P.E.I., says: "Your corn has exceeded our expectations and may become one of our staple crops in future. Next year the planting of fodder corn will be undertaken here on a large scale."

Benjamin Murray, of Bedeque, P.E.I., "planted the contents of the sample bag he received on the 12th June, and by careful hand-planting it was sufficient for six rows, each 4 chains in length. It was cut on the 10th October and was an excellent crop." He intends growing corn extensively next year.

Similar experience has been had in Nova Scotia.

POTATOES.

A limited distribution of potatoes was made in small bags containing 3 lbs. each, and quite a number of encouraging reports have been received, of which the following are examples:—

Chicago Market.

J. C. McNair of Perth Centre, N.B., received a sample bag of 3 lbs., from which he had a crop of 120 lbs. He says: "Planted 5th June, on light soil; harvested 10th October; earlier and better weight than other potatoes; am well pleased with the variety."

P. Fortien, of St. Fabien, Que., had a yield of 145 lbs. He says: "Planted 1st June, on yellow soil, dressed with manure; harvested 25th September. These potatoes are the finest of this year's harvest."

Joseph Marcott, of St. Albans, Que., had 83 lbs., and writes: "Planted 1st June, on grey soil; harvested 22nd September."

Thomas Bradley, of Minden, Ont., had a crop of 105 lbs. He says: "Planted 29th May, on sandy loam; harvested 15th October. These yielded about the same as the Rose."

Early Ohio.

R. R. Colpitts, of Forest Glen, N.B., had a crop of 50 lbs. He says: "Planted 25th May, on intervale loam; harvested 4th October; they had not a fair chance; soon after they came up the potato beetle almost destroyed them."

D. V. Gagné, of Sturgeon Falls, Ont., had a yield of 103 lbs., and writes: "Planted 28th May, on yellow soil manured; harvested 4th September; they are not as early as Early Rose but give double the yield here."

S. J. Ryan, of Head Lake, Ont., had 75 lbs., and says: "Planted 1st June, on rich clay loam; harvested 1st September; ripe two weeks earlier than Early Rose and fully double the yield."

Early Sunrise.

Phileas Fortien, of St. Fabien, Que., reports a yield of 120 lbs. from 3 lbs. received, and says: "Planted 30th May, on rich yellow soil; harvested 28th September. These potatoes are very good, are as early as Early Rose and promise well."

T. J. Amey, of Camden East, Ont., had a crop of 106 lbs., and says: "Planted 21st May on clay loam." The date of harvesting is not given.

Wm. Holmes, of Kirkfield, Ont., had a yield of 100 lbs. He says: "Planted 15th May, on clay loam; harvested 23rd September; they did better than any other sort we planted."

DISTRIBUTION OF FALL WHEAT.

CANADIAN VELVET CHAFF.

Early in the autumn of 1890 there was distributed in those districts of Ontario where fall wheat is successfully grown 519 3-lb. samples of the Canadian Velvet Chaff, a very promising variety of fall wheat. This wheat was tested at several points in Ontario, during 1890, and turned out remarkably well. It is a fine plump wheat and a heavy cropper. A large number of excellent reports have been received from the farmers to whom the samples were sent, from which the following have been selected:—

T. S. Brant, of Whitby, had a crop of 330 lbs. from 3 lbs. of seed, and says: "Sown broadcast 20th Sept., 1890, on clay loam, after barley; size of plot, $\frac{1}{10}$ acre; harvested 20th August, 1891; no smut or rust; straw stiff and bright; hardly so early as other varieties, but gives a better yield. I have sown the yield of the 3 lbs. sent on five acres." The weight of the sample returned was 60 $\frac{1}{2}$ lbs. per bushel.

Thos. Harris, of Hagersville, had a yield of 299 lbs. from 3 lbs. of seed. He says: "Sown broadcast 12th September, 1890, on sandy loam; size of plot, $\frac{1}{8}$ of an acre; harvested 17th July, 1891; no rust; a few grains of smut; straw rather coarse and soft; a day or two later than other varieties." The weight of the sample returned was 62 lbs. to the bushel.

John Grooms, of Bothwell, had 270 lbs. He says: "Sown broadcast 9th September, 1890, on clay loam; size of plot, 44 x 115 feet; harvested 19th July, 1891;

no rust or smut; straw coarse and of medium length; some 3 or 4 days later than the Scott-wheat, but far superior." The sample returned weighed 61 lbs. per bushel.

Mark Crawford, of Whithy, had a crop of 251 lbs. from 3 lbs. of seed. He says: "Sown in drills 9th September, 1890, on strong clay land; size of plot, $\frac{1}{11}$ of an acre; harvested 25th July, 1891; no rust; no smut; straw medium, with very large head; was fully as early as any other sorts grown in this locality; am very much pleased with the wheat; it stood the winter well, started early in the spring and produced a heavy crop." The weight of this sample was 62 $\frac{3}{4}$ lbs. per bushel.

Samuel Alton, of Belfast, also had a yield of 251 lbs., and says: "Sown broadcast 10th or 12th Sept., on clay loam; size of plot, $\frac{1}{17}$ of an acre; harvested 23rd July, 1891; no rust; some smut; straw bright and soft; was ripe as soon as the Star and Democrat, sown 10 or 12 days earlier; the yield was immense." The sample returned weighed 62 lbs. to the bushel.

Welcome Marr, of Glanford Station, had 186 lbs., and says: "Sown broadcast 8th Sept., 1890, on clay loam; size of plot, 6 x 60 yards; harvested 24th July, 1891; some rust; no smut; straw much like Clawson; four days later than Clawson or Golden Cross." The sample returned weighed 61 lbs. per bushel.

George H. Thompson, of Guelph, had a yield of 156 lbs. He says: "Sown in drills 9th Sept., 1890, on clay loam; size of plot, $\frac{1}{20}$ of an acre; harvested 28th July, 1891; no sign of rust; slightly affected with smut; straw bright, standing well; compares very favourably with other sorts; I think it will do well in this section." Sample returned weighed 61 $\frac{3}{4}$ lbs.

V. E. Kincade, of Wisbeach, had a crop of 151 lbs., and reports as follows: "Sown broadcast Sept., 1890, on light clay soil, mixed with gravel; size of plot, 1 $\frac{1}{2}$ x 7 rods; harvested 21st July, 1891; no rust, but a large quantity of smut; straw bright, long and strong; compares favourably with other sorts grown by me." The weight of the sample returned was 58 $\frac{3}{4}$ lbs. per bushel.

EXPERIMENTS WITH OATS.

During the season of 1891 forty-eight varieties of oats have been tested on the Central Experimental Farm, 29 of which have been grown in field crops, the remainder in small plots, chiefly in plots of $\frac{1}{20}$ of an acre each. Thirty-six varieties were sown side by side, all on the same day, on plots of $\frac{1}{20}$ of an acre. The land used for this purpose was the same as that used for the $\frac{1}{10}$ acre plots in 1890. This field was ploughed in the autumn of 1890, and manured in the spring of 1891, with about twenty two-horse loads of stable manure to the acre.

This was spread in the spring, lightly ploughed under and the land harrowed before sowing. These plots were arranged so as to have the oats follow wheat. These were all sown on the 28th of April, on sandy loam with a clay subsoil, but many of them rusted badly, which lessened the crops and reduced the weight per bushel very much, and caused the grain to ripen prematurely, so that the normal dates of ripening could not be accurately determined. For this reason the time of harvesting and the number of days maturing have been omitted.

TEST of Varieties of Oats, all sown same day.

	Yield per Acre.	Weight per Bushel.
	Bush. lbs.	Lbs.
American Beauty	30 03	23½
American Triumph	21 14	
Bonanza	23 30	29
Banner	37 14	23½
Badger Queen	27 29	31½
Black Tartarian	22 ..	21
“ Prolific (Webb's)	20 33	20½
Challenge White Canadian	24 14	27½
Canadian Triumph	31 28	39
Cream Egyptian	57 12	34½
Early Archangel	33 13	36½
Early Race-horse	36 24	33½
Early Blossom	38 18	26½
English Potato	38 08	28½
Flying Scotchman	48 26	32
Giant White Side	21 24	19
Hazlett's Seizure	11 06	27
Holstein Prolific	45 ..	26½
Hungarian White	30 28	34
Georgia Early White	32 32	31½
Longfellow	42 ..	30½
New Zealand	14 29	36½
Oderbruch	29 32	30½
Prize Cluster	28 28	27½
Rennie's Prize White	25 13	29½
Rosedale	27 32	27½
Siberian	34 02	32½
Victoria Prize	18 33	30
Wide Awake	24 16	24
White Russian	15 12	32½
Welcome	37 30	34
White Dutch	32 32	33½
White Giant	36 24	24½
Waterloo	37 15	24½
White Egyptian	49 32	29½
English White	21 08	32½

This list cannot be taken as a fair index of the fertility and quality of the different varieties, but since most of the plots were subject to the same unfavourable conditions, it was thought best to publish this comparative table. The field plots which follow, not having suffered so much with rust, make a much better showing and are more reliable as regards the comparative value of the different sorts.

LARGER FIELD PLOTS.

When the words “no manure” are used in the following records, it should be understood to mean that no manure has been applied to the lands spoken of since the experimental farm was purchased in 1887. We have no records of the treatment of such portions of the land as were under cultivation prior to this. When the word “manure” is used it means an application of about twenty two-horse loads per acre. Where reference is made to the preparation of the soil, it should be understood that in all cases where the disc harrow is used that it is followed with the ordinary toothed or smoothing harrow run crosswise before the grain is sown.

Banner.—On light sandy soil; manured in the spring of 1890; ploughed in the autumn of 1890, and disc harrowed in the spring of 1891; seven acres; sown 2nd May; 2½ bushels per acre; ripe 15th August; time to mature, 105 days; yield per acre, 44 bushels 31 lbs.; weigh per bushel, 36½ lbs. Oat long, white; length of

panicle, 6 to 7 inches; straw, 3 feet high, bright, with scarcely any rust. The crop in this instance would have shown a larger result, but for a hail storm, which threshed a portion of the grain out while in stook.

Bonanza.—On sandy loam; manured in the spring of 1890; ploughed in the autumn of 1890, and disc harrowed in the spring of 1891; $5\frac{1}{2}$ acres; sown 4th May; $1\frac{3}{4}$ bushels per acre; ripe 5th August; time to mature, 93 days; yield per acre, 39 bushels 28 lbs.; weight per bushel, $42\frac{1}{4}$ lbs.; oat short, plump, white; length of panicle, 8 to $8\frac{1}{2}$ inches; straw not strong or coarse, but standing well, 3 to $3\frac{1}{4}$ feet long; considerably rusted.

Canadian White.—On light sandy loam; manured in the spring of 1890; ploughed in the autumn of 1890, and disc harrowed in the spring of 1891; 2 acres; sown 24th April; 2 bushels per acre; ripe 18th August; time to mature, 116 days; yield per acre, 52 bushels 2 lbs., weighing 39 lbs. per bushel; oat long, not very plump, white; length of panicle, 8 to 9 inches; straw, 3 to $3\frac{1}{2}$ feet long; slightly rusted but standing well.

Challenge White Canadian (Webb's).—On clay loam; land ploughed in the autumn of 1890; manured in the spring of 1891, when it was ploughed again and harrowed; half an acre; sown 29th April; $1\frac{3}{4}$ bushels per acre; ripe 3rd August; time to mature, 96 days; yield per acre, 34 bushels 12 lbs.; weight per bushel, 33 lbs.; length of panicle, 8 to 10 inches; branching; length of straw, $4\frac{1}{2}$ to $4\frac{3}{4}$ feet; badly lodged, and so badly rusted that it ripened prematurely.

Cream Egyptian.—On soil partly sandy, partly peat; no manure; fourth crop since clearing; ploughed in the autumn of 1890; disc harrowed in the spring of 1891; $2\frac{1}{2}$ acres; sown 4th May; $1\frac{3}{4}$ bushels per acre; ripe 17th August; time to mature, 105 days; yield per acre, 43 bushels 31 lbs.; weight per bushel, $38\frac{1}{4}$ lbs.; oat of medium length, fairly plump, white; length of panicle, 8 to 9 inches; sided; straw, $3\frac{1}{2}$ to 4 feet long, standing fairly well; two small spots lodged; very slightly rusted.

Early Archangel.—On sandy loam, mixed with clay; no manure; some artificial fertilizer applied in 1889 for potatoes; ploughed in the autumn of 1890; disc harrowed in the spring of 1891; $\frac{3}{4}$ acre; sown 30th April; $1\frac{3}{4}$ bushels per acre; ripe 14th August; time to mature, 106 days; yield per acre, 48 bushels 8 lbs.; weight per bushel, $38\frac{3}{4}$ lbs.; oat of medium length, plump, white; length of panicle, $7\frac{1}{2}$ to 9 inches; branching; straw, $3\frac{1}{2}$ to 4 feet long; bright, with scarcely any rust; stands fairly well.

English Potato.—On sandy loam; manured in the spring of 1890; ploughed in the autumn of 1890; disc harrowed in the spring of 1891; 1 acre; sown 6th May; $1\frac{3}{4}$ bushels per acre; ripe 14th August; time to mature, 100 days; yield per acre, 48 bushels 9 lbs.; weight per bushel, $37\frac{1}{4}$ lbs.; oat short, fairly plump, white; length of panicle, 8 to $8\frac{1}{4}$ inches; sided; straw 4 feet long; lodged considerably; slightly rusted.

Early Race-horse.—On light sandy soil; no manure; this was the 4th crop from clearing; ploughed in the autumn of 1890; disc harrowed in the spring of 1891; 5 acres; sown 8th May; $1\frac{3}{4}$ bushels per acre; ripe 12th August; time to mature, 96 days; yield per acre, 26 bushels 23 lbs.; weight per bushel, $42\frac{1}{4}$ lbs.; oat short, plump, white; length of panicle, 8 to 9 inches; straw, 3 to $3\frac{1}{4}$ feet long, very badly broken by hail and rain; slightly rusted; about one-fourth of the grain was beaten out by a hail storm, which lessens the recorded yield.

Flying Scotchman.—On light sandy soil; no manure; has been cropped for four years; ploughed in the autumn of 1890, and disc harrowed in the spring of 1891; $5\frac{1}{2}$ acres; sown 8th May; $1\frac{3}{4}$ bushels per acre; ripe 11th August; time to mature, 95 days; yield per acre, 29 bushels 7 lbs.; oat short to medium in length, plump, white; length of panicle, 8 to 9 inches; branching; straw, 3 to $3\frac{1}{4}$ feet long; badly broken by hail storm, but not lodged, and about one-fourth of the grain threshed out; slightly rusted; land very poor and sandy.

Georgia Early White.—On light sandy loam; manured in the spring of 1890; ploughed in the autumn of 1890; disc harrowed in the spring of 1891; $1\frac{1}{2}$ acres; sown 24th of April; $1\frac{3}{4}$ bushels per acre; ripe 10th August, time to mature, 108

days; yield per acre, 42 bushels 29 lbs.; weight per bushel, 41 lbs.; oat of medium length, plump, white; length of panicle, $8\frac{1}{2}$ to $9\frac{1}{4}$ inches; branching; straw $3\frac{1}{2}$ to 4 feet long, standing fairly well; lodged at one end; slightly rusted.

Giant Swedish.—On sandy loam mixed with clay; no manure; artificial fertilizer applied in 1889 for potatoes; ploughed in the autumn of 1890 and disc harrowed in the spring of 1891; one acre; sown 30th of April; 2 bushels per acre; ripe 23rd August; time to mature, 115 days; yield per acre, 67 bushels 26 lbs.; weight per bushel, $32\frac{3}{4}$ lbs.; oat long, fairly plump, yellow; length of panicle, 9 to 10 inches; sided; straw 4 to $4\frac{1}{4}$ feet long, bright, free from rust and all standing.

Golden Beauty (Pearce).—On sandy loam, mixed with clay; no manure; artificial fertilizer applied in 1889 for potatoes; ploughed in the autumn of 1890 and disc harrowed in the spring of 1891; $\frac{1}{3}$ acre; sown 30th April; $1\frac{3}{4}$ bushels per acre; ripe 12th August; time to mature, 110 days; yield per acre, 64 bushels 32 lbs.; weight per bushel, 35 lbs.; oat medium to long, pale yellow; length of panicle, 7 to 8 inches; branching; straw 4 feet long, rather dark in colour; considerably rusted but standing fairly well.

Hazlett's Seizure.—Soil and preparation same as *Golden Beauty*; $\frac{3}{4}$ acre; sown 30th April; $1\frac{3}{4}$ bushels per acre; ripe 8th August; time to mature, 100 days; yield per acre, 44 bushels 14 lbs.; weight per bushel, 42 lbs.; oat short, plump; length of panicle, 7 to 8 inches; branching; straw, 3 to $3\frac{3}{4}$ feet long, rather weak; partly broken down about 1 foot from base; slightly rusted.

Holstein Prolific.—Soil and preparation same as *Golden Beauty*; $\frac{4}{5}$ acre; sown 30th April; 2 bushels per acre; ripe 11th August; time to mature, 103 days; yield per acre, 51 bushels 30 lbs.; weight per bushel, 35 lbs.; oat long, plump, pale yellow; length of panicle, 7 to 8 inches; branching; straw, 3 to $3\frac{1}{2}$ feet long; standing fairly well; very slightly rusted.

Hungarian White.—Soil and preparation same as *Golden Beauty*; $\frac{1}{2}$ acre; sown 30th April; $1\frac{3}{4}$ bushels per acre; ripe 25th August; time to mature, 117 days; yield per acre, 65 bushels 8 lbs.; weight per bushel, $30\frac{3}{4}$ lbs.; oat medium length, rather thin, white; length of panicle, 8 to 9 inches; branching; straw, $3\frac{1}{2}$ to $3\frac{3}{4}$ feet long; standing well; slightly rusted; some grain beaten out by storm.

Longfellow.—On light, sandy soil; manured in the spring of 1890; ploughed in the autumn of 1890 and disc harrowed in the spring of 1891; $1\frac{1}{2}$ acres; sown 6th May; $1\frac{3}{4}$ bushels per acre; ripe 17th August; time to mature, 103 days; yield per acre, 33 bushels 30 lbs.; weight per bushel, $33\frac{1}{4}$ lbs.; oat small size, black, keeps its colour well; length of panicle, 5 to 6 inches; branching; straw, $2\frac{1}{4}$ to $2\frac{1}{2}$ feet long; all standing; no rust; grain considerably beaten out by hail.

Oderbruch.—On soil partly sandy and partly clay loam; no manure; 4th crop; ploughed in the autumn of 1890 and disc harrowed in the spring of 1891; $1\frac{1}{6}$ acres; sown 16th May; $1\frac{3}{4}$ bushels per acre; ripe 20th August; time to mature, 96 days; yield per acre, 84 bushels 33 lbs.; weight per bushel, 29 lbs.; oat medium length, fairly plump, white; length of panicle, 8 to 9 inches; half-sided or sided; straw 4 to $4\frac{1}{4}$ feet long, standing fairly well; considerably rusted but very promising.

Poland White.—On light sandy loam; manured in the spring of 1890; ploughed in the autumn of 1890 and disc harrowed in the spring of 1891; $1\frac{3}{4}$ acres; sown 24th April; $1\frac{3}{4}$ bushels per acre; ripe, 10th August; time to mature, 108 days; yield per acre, 49 bushels 8 lbs.; weight per bushel, 34 lbs.; oat short, plump, white; length of panicle, 8 to 9 inches; branching; straw, $3\frac{1}{2}$ to 4 feet long; considerably lodged and slightly rusted.

Prize Cluster.—On sandy loam; part of this field was manured in the spring of 1889, the remainder in the spring of 1891; ploughed in the autumn of 1890; that part manured in 1889 was disc harrowed in the spring of 1891; the recently manured portion ploughed and harrowed; $11\frac{3}{4}$ acres; sown 30th April; $1\frac{3}{4}$ bushels per acre; ripe 8th August; time to mature, 100 days; yield per acre, 48 bushels 24 lbs.; weight per bushel, $43\frac{1}{4}$ lbs. About one-fourth of this grain was beaten out while in stook by a hail storm, otherwise the recorded yield would have been larger. Oat short, plump, white; length of panicle, 7 to 8 inches; branching; straw $3\frac{1}{2}$ to 4 feet long; standing fairly well; lodged very slightly in spots; not much rust.

Rosedale.—On sandy loam mixed with clay; no manure; artificial fertilizer applied in 1889 for potatoes; ploughed in the autumn of 1890; disc harrowed in the spring of 1891; half an acre sown 30th April, $1\frac{3}{4}$ bushels per acre; ripe 10th August; time to mature, 102 days; yield per acre, 83 bushels 6 lbs.; weight per bushel, $37\frac{3}{4}$ lbs.; oat short to medium, plump and white; length of panicle, 8 to $8\frac{1}{2}$ inches; sided or slightly branching; straw $3\frac{1}{2}$ to 4 feet long, standing fairly well; lodged in a few spots only; almost free from rust.

Rennie's Prize White.—On soil part sandy loam, part peaty; manured in the spring of 1890; ploughed in the autumn of 1890 and disc harrowed in the spring of 1891; $3\frac{1}{4}$ acres; sown 6th May, $1\frac{3}{4}$ bushels per acre; ripe 5th August; time to mature, 92 days; yield per acre, 39 bushels 23 lbs.; weight per bushel, 42 lbs.; oat short, plump and white, much like Prize Cluster; length of panicle, 8 inches, branching; straw, $3\frac{1}{2}$ feet long; slightly rusted.

Triumph Canadian.—On sandy loam; no manure; ploughed in the autumn of 1890 and again lightly in the spring of 1891 and harrowed; 2 acres; sown 29th April, $1\frac{3}{4}$ bushels per acre; ripe 3rd August; time to mature, 96 days; yield per acre, 18 bushels 15 lbs.; weight per bushel, $39\frac{1}{4}$ lbs.; oat short, plump and white; length of panicle, 9 to 10 inches, branching; straw 4 to $4\frac{1}{2}$ feet; rusted very badly and on this account ripened prematurely.

Triumph American.—On soil partly sandy and part clay loam; no manure; fourth crop; ploughed in the autumn of 1890; disc harrowed in the spring of 1891; 6 acres; sown 16th May, 2 bushels per acre; ripe 23rd August; time to mature, 99 days; yield per acre, 37 bushels 16 lbs.; weight per bushel, $34\frac{1}{4}$ lbs.; oat short, fairly plump and white; length of panicle, 7 to 8 inches, branching; straw 4 feet long; slightly rusted; lodged.

Tartarian Prolific Black (Webb's).—On clay loam, manured in the spring of 1891; ploughed in the autumn of 1890 and ploughed again and harrowed in the spring of 1891; two thirds of an acre; sown 29th April, 2 bushels per acre; ripe 11th August; time to mature, 104 days; yield per acre, 38 bushels 3 lbs.; weight per bushel, $33\frac{3}{4}$ lbs.; oat long, not plump, tawny colour; length of panicle, 7 to 8 inches, sided; straw 4 to $4\frac{1}{2}$ feet long, very weak; much broken about one foot from base; partly lodged; very much rusted.

Tartarian Black.—On light sandy soil, manured in the spring of 1890; ploughed in the autumn of 1890 and disc harrowed in the spring of 1891; $1\frac{1}{8}$ acres; sown 6th May, $1\frac{3}{4}$ bushels per acre; ripe 15th August; time to mature, 101 days; yield per acre, 38 bushels 26 lbs.; weight per bushel, $33\frac{3}{4}$ lbs.; oat long, tawny to black; length of panicle, 6 to 7 inches, sided; straw 3 to $3\frac{1}{4}$ feet long, standing well; no rust; grain partly threshed out by hail.

Victoria Prize White.—On sandy loam mixed with clay, manured in the spring of 1890; ploughed in the autumn of 1890; disc harrowed in the spring of 1891; 6 acres; sown 2nd May, $1\frac{3}{4}$ bushels per acre; ripe 7th August; time to mature, 97 days; yield per acre, 26 bushels 29 lbs.; weight per bushel, $39\frac{3}{4}$ lbs.; oat short, plump and white, closely resembling Prize Cluster; length of panicle, 8 inches, branching; straw $3\frac{1}{2}$ feet long, standing fairly well; one end of field lodged; very little rust.

Welcome.—On soil part sandy and part peaty; no manure; fourth crop from clearing; ploughed in the autumn of 1890; disc harrowed in the spring of 1891; $1\frac{1}{4}$ acres; sown 4th May, $1\frac{3}{4}$ bushels per acre; ripe 5th August; time to mature, 93 days; yield per acre, 53 bushels 9 lbs.; weight per bushel, 37 lbs.; oat short, plump, white; length of panicle, 8 to $8\frac{1}{2}$ inches, branching; straw $3\frac{1}{4}$ to $3\frac{1}{2}$ feet long; more or less rusted; standing well.

White Russian.—Soil and preparation same as Welcome; 3 acres; sown 4th May, $1\frac{3}{4}$ bushels per acre; ripe 19th August; time to mature, 107 days; yield per acre, 37 bushels 31 lbs.; weight per bushel, 38 lbs.; oat long, fairly plump, whitish yellow; length of panicle, 8 to 9 inches, sided; straw 3 to 4 feet long, partly lodged and slightly rusted.

ADDITIONAL SMALL PLOTS OF OATS.

The seed of the following varieties was obtained in the spring of 1891 from Vilmorin, Andrieux & Co., the well-known seedsmen of Paris, France. They were all sown on sandy loam; the land where the first four plots were sown was manured in 1890; the others were manured in 1889; all were ploughed in the autumn of 1890 and disc-harrowed twice in the spring of 1891.

Early Etampes.—Size of plot, 49 x 132 feet. Sown 6th May, $1\frac{3}{4}$ bushels per acre; ripe 27th August; time to mature, 113 days; yield per acre, 37 bushels 22 lbs.; weight per bushel 30 lbs.; oat medium to long, not very plump, black; length of panicle, 8 inches, branching; mixed with a considerable proportion of sided oats; straw $3\frac{1}{2}$ to 4 feet long, thin and weak; considerably lodged; slightly rusted.

California Prolific Black.—Size of plot, 43 x 132 feet; sown 6th May, $1\frac{3}{4}$ bushels per acre; ripe 25th August; time to mature, 111 days; yield per acre, 44 bushels 31 lbs.; considerably threshed out by hail storm; weight per bushel, $26\frac{1}{2}$ lbs.; oat medium length, slender, tawny; length of panicle, 11 inches, sided; straw coarse, considerably lodged and more or less rusted, but promising.

Black Coulommiers.—Size of plot, 37 x 132 feet; sown 6th May, $1\frac{3}{4}$ bushels per acre; ripe 25th August; time to mature, 111 days; yield per acre, 48 bushels 27 lbs.; oat short, plump, black; panicle, branching.

Joanette.—Size of plot, 60 x 132 feet; sown 6th May, $1\frac{3}{4}$ bushels per acre; ripe 25th August; time to mature, 111 days; yield per acre, 56 bushels 26 lbs.; weight per bushel, $31\frac{1}{4}$ lbs.; oat medium to long, tawny to black; length of panicle, 7 to 8 inches, branching; straw 4 to $4\frac{1}{4}$ feet long, rather thin; badly lodged and slightly rusted.

Abundance.—Size of plot, 12 x 590 feet; sown 6th May, $1\frac{3}{4}$ bushels per acre; ripe 18th August; time to mature, 104 days; yield per acre, 64 bushels 27 lbs.; weight per bushel, $30\frac{1}{4}$ lbs.; oat long, rather slender, yellowish white; length of panicle, $8\frac{1}{2}$ to 9 inches, branching; straw $4\frac{1}{2}$ feet long, strong; stands well; slightly lodged at one end; very slightly rusted.

Black Brie.—Size of plot, 12 x 590 feet; sown 6th May, $1\frac{3}{4}$ bushels per acre; ripe 25th August; time to mature, 111 days; yield per acre, 45 bushels 33 lbs.; weight per bushel, $21\frac{1}{2}$ lbs.; oat medium to long, slender, tawny to black; length of panicle, 12 inches, branching; straw 5 feet long; considerably rusted.

Improved Ligowo.—Size of plot, 24 x 590 feet; sown 6th May, $1\frac{3}{4}$ bushels per acre; ripe 19th August; time to mature, 105 days; yield per acre, 55 bushels 10 lbs.; weight per bushel, $34\frac{1}{2}$ lbs.; oat medium to long, plump, white; length of panicle, $8\frac{1}{2}$ inches, branching; straw $4\frac{1}{2}$ feet long, standing well, but considerably rusted.

Giant Cluster.—Size of plot, 12 x 490 feet; sown 6th May, $1\frac{3}{4}$ bushels per acre; ripe 24th August; time to mature, 110 days; yield per acre, 62 bushels 33 lbs.; weight per bushel, $23\frac{1}{2}$ lbs.; oat long, rather slender, deep yellow; length of panicle, $11\frac{1}{2}$ inches, sided; straw 4 feet long, stiff; did not lodge; very little rust.

Small quantities of the following varieties were also tested:—

Early Gothland.—Two pounds of these oats sent by Steele Bros., of Toronto, for test, were sown on 30th April, on sandy loam; size of plot, 22 x 60 feet. Shortly after sowing a considerable portion of the seed was blown out by a heavy wind, which will probably account for the light crop; ripe 27th August; time to mature, 119 days; yield, 24 lbs.; oat short to medium, white; length of panicle, 9 to 10 inches, sided; straw 3 feet 8 inches to 4 feet 10 inches long; considerably rusted, but standing well.

Black Bourbonnaire, from P. Delorme, Ohlen, N.W.T.; $1\frac{1}{2}$ lbs. was sown 1st May; ripe 27th August; time to mature, 118 days; yield, 52 lbs.; oat medium length, slender, tawny to black; length of panicle, 7 to 8 inches, branching; straw 3 feet 9 inches to 4 feet long, thin; slightly lodged and slightly rusted.

Scottish Chief.—Seven ounces of these oats were received from Mr. W. T. Hyman, of London, Ont.; they were sown 30th April; ripe 9th August; time to mature, 101 days; yield, 20 lbs.; weight per bushel, $39\frac{1}{2}$ lbs.; oat short to medium, plump, white; length of panicle, 10 inches, branching; straw 4 to $4\frac{1}{2}$ feet long; lodged badly, and considerably rusted.

EXPERIMENTS WITH BARLEY.

TWO-ROWED VARIETIES.

Adjoining the one-twentieth acre plots of oats was a similar series of plots of barley, all sown the same day. The particulars as to the character of the soil and its preparation are given under "Experiments with Oats." The barley plots consisted of 26 two-rowed varieties and 19 six-rowed; in rotation of crop they followed oats.

TEST of Varieties of Barley, all sown same day.

Varieties.	Date of Sowing.	Date of Ripening.	Number of Days Maturing.	Yield per Acre.		Weight per Bushel.
				Bush.	Lbs.	Lbs.
Beardless.....	April 28....	Aug. 11....	105	34	28	51½
Besthorns.....	do 28....	do 12....	106	46	28	53
Duckbill.....	do 28....	do 6....	100			52½
Danish Chevalier.....	do 28....	do 11....	105	41	40	52
Danish Printice Chevalier.....	do 28....	do 12....	106	49	30	52½
Dutch.....	do 28....	do 7....	101	41	44	52
Early Minting.....	do 28....	do 10....	104	42	24	52
Goldthorpe (resembles Duckbill)....	do 28....	do 13....	107	49	28	52½
Golden Melon.....	do 28....	do 11....	105	43	40	52½
Italian (resembles Duckbill).....	do 28....	do 5....	99	49	36	51½
Kinver Chevalier.....	do 28....	do 12....	106	42	36	52½
Golden Grains (Webb).....	do 28....	do 12....	106	32	32	53½
New Zealand.....	do 28....	do 6....	100	42	04	52½
Odessa (two-rowed).....	do 28....	July 31....	94	31	10	53½
Prize Prolific.....	do 28....	Aug. 12....	106	33	18	53
Peacock (resembles Duckbill).....	do 28....	do 9....	103	43	20	52½
Peerless White.....	do 28....	do 11....	105	37	2	52½
Prolific.....	do 28....	do 6....	100	38	10	53½
Phoenix Von Thalen.....	do 28....	do 4....	98	54	32	53½
Rice or Fan.....	do 28....	do 4....	98	34	20	49½
Saale.....	do 28....	do 12....	106	47	20	51
Selected Chevalier.....	do 28....	do 8....	102	41	24	52½
Sharpe's Improved Chevalier.....	do 28....	do 9....	103	43	16	52½
Swedish.....	do 28....	do 10....	104	48	16	53½
Thanet.....	do 28....	do 9....	103	41	40	52½
Large Two-rowed Naked.....	do 28....	do 3....	97	27	26	60½

The Duckbill barley was, unfortunately, lost after threshing, before it was weighed; hence we have no record of the yield of that variety. The Duckbill, Goldthorpe, Italian and Peacock resemble each other very much. They have the heads nearly erect, like wheat, and usually stand up well. The Rice or Fan has a similar habit, but the head is short and spreading. All the other sorts are of the Chevalier type, with long pendant heads, for which reason they are more liable to lodge.

Larger Field Plots.

Danish Chevalier.—On sandy loam mixed with clay; manured in the spring of 1890; sown with pease and ploughed under in 1890; ploughed again in the autumn of 1890, and disc harrowed in the spring of 1891; 2½ acres; sown 1st May, 2 bushels per acre; ripe 12th August; time to mature, 103 days; yield per acre, 43 bushels 41 lbs.; weight per bushel, 49½ lbs.; length of head, 3½ to 4 inches; straw 2½ to 3 feet long, standing fairly well.

Danish Printice Chevalier.—On sandy loam mixed with peat; manured in the spring of 1890; ploughed in the autumn of 1890 and disc harrowed in the spring of 1891; 1½ acre; sown 1st May, 2 bushels per acre; ripe 18th August; time

to mature, 109 days ; yield per acre, 29 bushels 10 lbs. ; weight per bushel, 48 $\frac{3}{4}$ lbs. ; length of head, 4 inches ; straw 2 $\frac{3}{4}$ to 3 feet, all standing very well. This plot was rather low in spots and was badly injured by frost in the spring.

Duckbill.—On sandy loam ; manured in the spring of 1888 ; $\frac{1}{2}$ acre ; sown 21st April, 1 $\frac{3}{4}$ bushels per acre ; ripe 6th August ; time of maturing, 107 days ; yield per acre, 69 bushels 27 lbs. ; weight per bushel, 51 lbs. ; length of head, 2 $\frac{3}{4}$ to 3 inches ; straw 3 to 4 feet ; stands well ; slightly lodged in one corner ; leaves considerably rusted ; stem clean.

Early Mating.—On sandy loam ; manured in the spring of 1890 ; ploughed in the autumn of 1890 and disc-harrowed in the spring of 1891 ; $\frac{1}{2}$ acre ; sown 1st May, 2 bushels per acre ; ripe 14th August ; time to mature, 105 days ; yield per acre, 39 bushels 10 lbs. ; weight per bushel, 49 $\frac{1}{2}$ lbs. ; length of head, 3 $\frac{1}{2}$ inches ; straw 2 $\frac{1}{2}$ to 3 feet long, standing fairly well ; no rust.

Goldthorpe.—On sandy loam, mixed with clay ; a small part of this field manured in the spring of 1890 ; larger part unmanured ; fourth crop ; 4 $\frac{1}{2}$ acres ; sown 1st May, 2 bushels per acre ; ripe 18th August ; time to mature, 109 days ; yield per acre, 29 bushels 6 lbs. Land very poor, which will account for small crop. Weight of grain per bushel, 50 $\frac{1}{4}$ lbs. ; length of head, 3 $\frac{1}{4}$ inches ; straw 2 $\frac{1}{4}$ to 2 $\frac{1}{2}$ feet long, good and strong ; only one spot lodged, all the rest standing ; very little rust.

A second plot of $\frac{1}{6}$ acre, on a better quality of sandy loam, manured in the spring of 1888, was sown 22nd April ; ripe 9th August ; time to mature, 109 days ; yield per acre, 73 bushels 14 lbs. ; weight per bushel, 49 $\frac{3}{4}$ lbs.

Golden Melon.—On sandy loam mixed with clay, adjoining Goldthorpe ; no manure ; 4th crop ; ploughed in the autumn of 1890 and disc-harrowed in the spring of 1891 ; 1 $\frac{1}{2}$ acres ; sown 1st May, 2 bushels per acre ; ripe 10th August ; time to mature, 101 days ; yield per acre, 21 bushels 9 lbs. ; weight per bushel, 49 lbs. ; length of head, 3 $\frac{1}{2}$ to 4 inches ; straw 3 $\frac{1}{4}$ to 3 $\frac{1}{2}$ feet long ; considerably broken down but not lodged ; very little rust.

Golden Grains (Webb).—On sandy loam mixed with clay. About $\frac{1}{4}$ of this field was manured in the spring of 1889, remainder no manure ; 4th crop ; ploughed in the autumn of 1890 ; disc-harrowed in the spring of 1891 ; $\frac{2}{3}$ acres ; sown 7th May, 1 $\frac{3}{4}$ bushels per acre ; ripe 10th August ; time to mature, 95 days ; yield per acre, 28 bushels 40 lbs. ; weight per bushel, 47 $\frac{1}{2}$ lbs. ; length of head, 4 inches ; straw 3 to 3 $\frac{1}{4}$ feet long, standing fairly well ; slightly rusted.

Kinver Chevalier (Webb).—On sandy loam ; had a light coating of manure in the spring of 1891, after which it was ploughed and harrowed ; 2 acres ; sown 24th April, 1 $\frac{1}{2}$ bushels per acre ; ripe 8th August ; time to mature, 105 days ; yield per acre, 58 bushels 2 lbs. ; weight per bushel, 52 $\frac{1}{4}$ lbs. ; length of head, 4 to 5 inches ; straw 3 $\frac{1}{4}$ feet long ; bright, but badly lodged.

A second field of this variety was sown adjoining Golden Grains, to which the reader is referred for particulars as to soil and preparation ; 1 $\frac{1}{4}$ acres ; sown 7th May, 1 $\frac{3}{4}$ bushels per acre ; ripe 12th August ; time to mature, 97 days ; yield per acre, 41 bushels 23 lbs. ; weight per bushel, 51 $\frac{1}{2}$ lbs. ; length of head, 3 to 4 inches ; straw 2 $\frac{3}{4}$ to 3 feet long, standing fairly well ; lodged in spots ; slightly rusted.

Two acres of similar land adjoining was sown on the same date with the same variety of grain. To this there was applied 400 lbs. per acre of the Royal Canadian fertilizer made by the Nicholas Chemical Co., of Capelton, Que. The yield of this field was 56 bushels 10 lbs. per acre ; weight per bushel, 51 $\frac{1}{2}$ lbs.

Prize Prolific.—On clay loam mixed with sand ; manured in the autumn of 1887 ; ploughed in the autumn of 1890 ; disc-harrowed in the spring of 1891 ; 7 $\frac{1}{2}$ acres ; sown 15th May, 2 bushels per acre ; ripe 20th August ; time to mature, 97 days ; yield per acre, 41 bushels 39 lbs. ; weight per bushel, 49 $\frac{1}{4}$ lbs. ; length of head, 4 to 4 $\frac{1}{2}$ inches ; straw 3 to 3 $\frac{1}{4}$ feet long ; standing fairly well but slightly rusted.

A second field of this variety was sown on heavy sandy loam mixed with peat ; 2 $\frac{3}{4}$ acres ; no manure ; 4th crop with similar cultivation. The yield in this instance was 34 bushels 36 lbs. per acre.

Selected Chevalier.—On sandy loam; manured in the spring of 1890, ploughed in the autumn of 1890, disc harrowed in the spring of 1891; $\frac{2}{3}$ acre; sown 1st May. 2 bushels per acre; ripe 14th August; time to mature, 105 days; yield per acre, 38 bushels 7 lbs.; weight per bushel, 50 lbs.; length of head, $3\frac{1}{4}$ to $3\frac{3}{4}$ inches; straw $2\frac{1}{2}$ to 3 feet long, standing well; no rust.

SIX-ROWED VARIETIES.

The following were sown on one-twentieth acre plots adjoining those of the two-rowed oats:—

	Date of Sowing.	Date of Ripening.	Number of Days Maturing.	Yield per Acre.	Weight per Bushel.
				Bush. lbs.	Lbs.
Baxter's six-rowed	April 28.	July 26.	89	40 00	51 $\frac{1}{2}$
Common six-rowed	do 28.	do 25.	88	46 26	53 $\frac{1}{2}$
Guymalaye (hulless)	do 28.	Aug. 6.	100	45 12	59 $\frac{1}{2}$
Greek six-rowed	do 28.	do 3.	97	24 44	47 $\frac{1}{2}$
Hulless Black (hulless)	do 28.	July 31.	94	34 22	62 $\frac{1}{2}$
Kangra Valley	do 28.	do 26.	89	29 30	50 $\frac{1}{2}$
Lahoul (hulless)	do 28.	Aug. 10.	104	25 04	58 $\frac{1}{2}$
Mensury	do 28.	July 29.	92	45 36	50 $\frac{1}{2}$
Moulton	do 28.	do 25.	88	26 40	50 $\frac{1}{2}$
Mardan	do 28.	do 25.	88	30 26	51 $\frac{1}{2}$
Oderbruch	do 28.	do 27.	90	51 32	53 $\frac{1}{2}$
Odessa six-rowed	do 28.	Aug. 1.	95	43 24	49 $\frac{1}{2}$
Palampur	do 28.	July 31.	94	38 42	49 $\frac{1}{2}$
Petschora	do 28.	do 23.	86	32 14	47 $\frac{1}{2}$
Rennie's Improved	do 28.	do 27.	90	41 32	53
Spiti Valley (hulless)	do 28.	do 24.	87	22 14	58 $\frac{1}{2}$
Stalkot.	do 28.	do 25.	88	34 26	49 $\frac{1}{2}$
Simla	do 28.			34 22	47 $\frac{1}{2}$
Seoraj	do 28.	Aug. 1.	95	34 26	46 $\frac{1}{2}$

Larger Field Plots.

Baxter's Six-rowed.—On good sandy loam; had a light coat of manure in the spring of 1891, when it was ploughed and harrowed before seeding; $1\frac{1}{2}$ acres; sown 24th April, $1\frac{1}{2}$ bushels per acre; ripe 28th July; time to mature, 95 days; yield per acre, 51 bushels 35 lbs.; weight per bushel, $51\frac{1}{4}$ lbs.; length of head, $2\frac{1}{4}$ to $2\frac{3}{4}$ inches; straw 3 to $3\frac{1}{2}$ feet long, considerably lodged. This barley was much affected with smut.

A second plot of $\frac{1}{20}$ of an acre, on sandy loam, was sown 21st April, $1\frac{1}{4}$ bushels per acre; ripe 29th July; time of maturing, 99 days; yield per acre, 30 bushels 28 lbs.; weight per bushel, 51 lbs.

Rennie's Improved.—Adjoining Baxter's; similar soil and similar treatment; $\frac{1}{8}$ of an acre; sown 24th April, $1\frac{1}{2}$ bushels per acre; ripe 28th July; time to mature, 95 days; yield per acre, 77 bushels 24 lbs.; weight per bushel, 52 lbs.; length of head, 3 to 4 inches; straw 3 feet long; a strong, even growth; slightly lodged at one end.

A second plot of $\frac{1}{20}$ acre on sandy loam; was sown 22nd April $1\frac{3}{4}$ bushels per acre; ripe 29th July; time of maturing, 98 days; yield per acre, 38 bushels 22 lbs.

Norway House Barley.—On sandy loam; $\frac{1}{10}$ acre. Sown 22nd April, $1\frac{3}{4}$ bushels per acre; ripe 23rd July; time of maturing, 92 days; yield per acre, 49 bushels 10 lbs.; weight per bushel, $50\frac{1}{2}$ lbs.; length of head, $2\frac{1}{2}$ inches; straw 3 feet 1 in.; stands well but slightly rusted.

EXPERIMENTS WITH SPRING WHEAT.

Adjoining the $\frac{1}{10}$ acre plots of oats and barley there was a similar group of plots of spring wheat, all sown on the same day. The particulars as to the character of the soil and its preparation are given under experiments with oats. The wheat plots, which consisted of 38 varieties, followed barley.

TEST of Varieties of Spring Wheat, all sown same day.

	Date of Sowing.	Date of Ripening.	Number of Days Maturing.	Yield per Acre.	Weight per Bushel.
				Bush. lbs.	Lbs.
Australian	April 29	Aug. 13	106	13 22	50
Anglo Canadian	do 29	do 13	106	15 27	54 $\frac{1}{2}$
Bearded Red	do 29	do 10	103	28 54	56 $\frac{1}{2}$
Calcutta Club (Indian)	do 29	do 4	97	15 12	59 $\frac{1}{2}$
Calcutta Hard (Indian)	do 29	do 3	96	13 06	58 $\frac{1}{2}$
Connell White	do 29	do 13	106	30 16	58
Connell Red	do 29	do 14	107	26 39	58 $\frac{1}{2}$
Colorado	do 29	do 10	103	27 34	58 $\frac{1}{2}$
California White	do 29	do 14	107	18 00	56
Delhi White	do 29	do 11	104	13 41	59
Defiance (Johnston's)	do 29	do 18	111	19 17	57 $\frac{1}{2}$
Democrat Spring	do 29	do 20	113	32 19	56 $\frac{1}{2}$
Fife Red	do 29	do 14	107	22 35	55 $\frac{1}{2}$
Fife White	do 29	do 16	109	26 07	57 $\frac{1}{2}$
Fife (Wellman's)	do 29	do 15	108	27 07	57 $\frac{1}{2}$
Gehun (Indian)	do 29	do 9	102	13 30	57 $\frac{1}{2}$
Goose	do 29	do 20	113	33 35	57 $\frac{1}{2}$
Great Western	do 29	do 16	109	29 57	59
Green Mountain	do 29	do 14	107	19 19	53 $\frac{1}{2}$
Galician Summer	do 29	do 17	110	24 30	56 $\frac{1}{2}$
Herison's Beardless	do 29	do 13	106	15 48	54
Hungarian Mountain	do 29	do 14	107	24 06	59
Huestons	do 29	do 13	106	25 27	56 $\frac{1}{2}$
Judket	do 29	do 16	109	25 46	57 $\frac{1}{2}$
Karachi (Indian)	do 29	do 10	103	8 20	54 $\frac{1}{2}$
Kangra Valley (Indian)	do 29	do 10	103	6 25	55 $\frac{1}{2}$
Ladoga	do 29	do 5	98	21 07	57 $\frac{1}{2}$
Lahoul (Indian)	do 29	do 6	99	18 47	52 $\frac{1}{2}$
Pringle's Champlain	do 29	do 12	105	31 59	57 $\frac{1}{2}$
Palampur (Indian)	do 29	do 4	97	18 05	59
Rio Grande	do 29	do 17	110	35 07	59 $\frac{1}{2}$
Russian Hard Tag	do 29	do 13	106	30 05	58 $\frac{1}{2}$
Red Fern	do 29	do 17	110	35 30	58 $\frac{1}{2}$
Saxonka	do 29	do 11	104	19 13	55 $\frac{1}{2}$
Triumph (Campbell's)	do 29	do 9	102	15 35	56 $\frac{1}{2}$
Trimenian Sicilian	do 29	do 18	111	19 33	53 $\frac{1}{2}$
White Chaff (Campbell's)	do 29	do 9	102	25 13	56 $\frac{1}{2}$
White Russian	do 29	do 13	106	27 59	57 $\frac{1}{2}$

The weight of the grain in these plots, and in some instances the yield also, was lessened by the prevalence of rust, from which nearly all the varieties suffered more or less.

Larger Field Plots.

Anglo Canadian.—On sandy loam mixed with peat; no manure; fourth crop; ploughed in the autumn of 1890, disc harrowed in the autumn of 1891; $\frac{2}{3}$ acre. Sown 2nd May, 1 $\frac{1}{2}$ bushels per acre; ripe 19th August; time to mature, 109 days. Yield per acre, 20 bushels 42 lbs.; weight per bushel, 57 $\frac{1}{2}$ lbs. Length of head, 3 $\frac{1}{2}$ inches; bearded; straw 3 $\frac{1}{2}$ to 3 $\frac{3}{4}$ feet long, all standing well; slightly rusted.

Judket.—On clay loam; no manure; fifth crop; ploughed in the autumn of 1890, disc harrowed in the spring of 1891; $\frac{2}{3}$ acre. Sown 25th April, $1\frac{1}{2}$ bushels per acre; ripe 15th August; time to mature, 112 days; yield per acre, 31 bushels 22 lbs.; weight per bushel, 59 lbs. Length of head, 3 to $3\frac{1}{4}$ inches; beardless; straw $3\frac{1}{2}$ feet long, standing well; slightly rusted.

Johnston's Defiance.—Soil and treatment the same as Judket; $\frac{1}{2}$ acre. Sown 25th April, $1\frac{1}{2}$ bushels per acre; ripe 14th August; time to mature, 111 days; yield per acre, 45 bushels 21 lbs.; weight per bushel, 59 lbs. Length of head, 3 inches; beardless; straw $3\frac{1}{2}$ feet long, all standing; slightly rusted; a promising variety.

Ladoga.—Soil and treatment the same as Judket; $\frac{2}{3}$ acre. Sown 25th April, $1\frac{1}{2}$ bushels per acre; ripe 7th August; time to mature, 104 days; yield per acre, 28 bushels 32 lbs.; weight per bushel, $59\frac{3}{4}$ lbs. Length of head, 3 to $3\frac{1}{4}$ inches, bearded; straw $3\frac{1}{2}$ feet long, standing fairly well; lodged in one spot only; slightly rusted.

Red Connell.—Soil and treatment the same as Judket; $\frac{2}{3}$ acre. Sown 25th April, $1\frac{1}{2}$ bushels per acre; ripe 14th August; time to mature, 111 days; yield per acre, 28 bushels 47 lbs.; weight per bushel, $58\frac{1}{4}$ lbs. Length of head, about 3 inches, beardless; straw 3 feet long, standing well; slightly rusted.

Rio Grande.—Soil and treatment the same as Judket; $1\frac{1}{2}$ acres. Sown 25th April; $1\frac{1}{2}$ bushels per acre; ripe 15th August; time to mature, 112 days; yield per acre, 26 bushels 20 lbs.; weight per bushel, $59\frac{1}{2}$ lbs. Length of head, $3\frac{1}{4}$ to 4 inches, bearded; straw $3\frac{3}{4}$ to 4 feet long; strong, bright; all standing well; slightly rusted; a promising variety.

Triumph (Campbell's).—Soil and treatment the same as Judket; $1\frac{1}{2}$ acres. Sown 25th April, $1\frac{1}{2}$ bushels per acre; ripe 10th August; time to mature, 107 days; yield per acre, 23 bushels 58 lbs.; weight per bushel, $55\frac{1}{4}$ lbs. Length of head, $2\frac{3}{4}$ to $3\frac{1}{4}$ inches, beardless; straw 3 feet long; considerably rusted.

White Chaff (Campbell's).—Soil and treatment the same as Judket; 3 acres. Sown 24th April, $1\frac{1}{2}$ bushels per acre; ripe 9th August; time to mature, 107 days; yield per acre, 28 bushels 51 lbs.; weight per bushel, 58 lbs. Length of head, $3\frac{1}{2}$ to $3\frac{3}{4}$ inches, beardless; straw 3 to $3\frac{1}{4}$ feet; fairly stiff and standing well; considerably rusted.

White Fife.—Soil and treatment the same as Judket; $\frac{1}{2}$ acre. Sown 25th April; $1\frac{1}{2}$ bushels per acre; ripe 14th August; time to mature, 111 days; yield per acre, 29 bushels 30 lbs.; weight per bushel, $58\frac{3}{4}$ lbs. Length of head, about 3 inches, beardless; straw $3\frac{1}{4}$ to $3\frac{1}{2}$ feet long; all standing; slightly rusted.

White Connell.—Soil and treatment the same as Anglo Canadian; $\frac{1}{2}$ acre. Sown 2nd May, $1\frac{1}{2}$ bushels per acre; ripe 20th August; time to mature, 110 days; yield per acre, 21 bushels 39 lbs.; weight per bushel, $57\frac{1}{2}$ lbs. Length of head, about 3 inches, beardless; straw 3 to $3\frac{1}{4}$ feet long; all standing well; very slightly rusted.

Hard Calcutta (from India).—Soil and treatment the same as Judket; $\frac{1}{2}$ acre. Sown 25th April, $1\frac{1}{2}$ bushels per acre; ripe 5th August; time to mature, 102 days; yield per acre, 14 bushels 33 lbs.; weight per bushel, $60\frac{3}{4}$ lbs.; length of head, 2 to $2\frac{1}{2}$ inches, bearded; straw 2 to $2\frac{1}{4}$ feet long; slender, weak growth.

EXPERIMENTS WITH PEAS.

Ten varieties of peas were sown in field plots, all on sandy loam.

Black-eyed Marrowfat.—On sandy loam mixed with clay; manured in the spring of 1890; ploughed in the autumn of 1890; disc harrowed in the spring of 1891; $\frac{2}{3}$ acre; sown 23rd April, 4 bushels per acre; ripe 17th August; time to mature, 116 days; yield per acre, 39 bushels 21 lbs.; weight per bushel, $61\frac{1}{2}$ lbs.; vines made a very strong growth.

A second plot of this variety on sandy loam; no manure; 4th crop; ploughed in the autumn of 1890; disc harrowed in the spring of 1891; $\frac{2}{3}$ acre; sown 27th April; $3\frac{1}{2}$ bushels per acre; when about 3 inches high the plants were entirely eaten

off 24th to 26th May, by cut-worms, but they very soon started a second growth; were ripe 19th August; time to mature, 114 days. This plot yielded 29 bushels 59 lbs. per acre, weighing $61\frac{1}{2}$ lbs. per bushel; strong growth.

Crown.—Soil and treatment the same as second plot of Black-eyed Marrowfats; $\frac{1}{2}$ acre. Sown 27th April, $2\frac{1}{2}$ bushels per acre. This plot also was partly eaten off by cut-worms, 24th to 26th May, but the plants soon started a vigorous second growth; the peas were ripe 16th August; time to mature, 111 days; yield per acre, 47 bushels 11 lbs.; weight per bushel, 62 lbs.; very strong growth.

Daniel O'Rourke.—Soil and treatment the same as second plot of Black-eyed Marrowfat; $\frac{1}{3}$ acre. Sown 27th April, $2\frac{1}{2}$ bushels per acre; ripe 3rd August; time to mature, 98 days; yield per acre, 38 bushels 54 lbs.; weight per bushel, 62 lbs.; fair growth.

Mummy.—Soil and treatment the same as second plot of Black-eyed Marrowfats; $\frac{2}{3}$ acre. Sown 27th April, $2\frac{1}{2}$ bushels per acre; eaten off by cut-worms, 24th to 26th May; soon started a vigorous second growth; ripe 17th August; time to mature, 111 days; yield per acre, 39 bushels 13 lbs.; weight per bushel, $62\frac{1}{4}$ lbs.; a very strong-growing variety.

Multiplier.—Soil of same character and treatment as second plot of Black-eyed Marrowfats, but a poorer piece of land; $3\frac{3}{4}$ acres. Sown 27th April, $2\frac{1}{2}$ bushels per acre; ripe 16th August; time to mature, 110 days; yield per acre, 27 bushels 12 lbs.; weight per bushel, $62\frac{1}{2}$ lbs.; a fairly strong-growing sort.

Pride.—Soil and treatment the same as second plot of Black-eyed Marrowfats; $\frac{2}{3}$ acre. Sown 27th April, $2\frac{1}{2}$ bushels per acre; completely eaten off by cut-worms, 24th to 26th May; a vigorous second growth soon started and the peas were ripe 15th August; time to mature, 109 days; yield per acre, 37 bushels 55 lbs.; weight per bushel, $64\frac{1}{4}$ lbs.; a strong-growing and promising variety.

Prussian Blue.—Soil and treatment the same as *Pride*; $\frac{1}{2}$ acre. Sown 27th April, $2\frac{1}{2}$ bushels per acre; also eaten off by cut-worms; started a good second growth and ripened 20th August; time to mature, 114 days; yield per acre, 28 bushels 20 lbs.; weight per bushel, 63 lbs.

Prince Albert.—Soil and treatment the same as *Pride*; $\frac{1}{2}$ acre. Sown 27th April, $2\frac{1}{2}$ bushels per acre; yield per acre, 40 bushels 2 lbs.; not injured by cut-worms; ripe, 17th August; time to mature, 111 days; weight per bushel, 62 lbs.; a strong-growing sort.

White Marrowfat.—Soil and treatment the same as *Pride*; $\frac{2}{3}$ acre. Sown 27th April; $3\frac{1}{2}$ bushels per acre; eaten off by cut-worms, 24th to 26th May; ripe 20th August; time to mature, 114 days; yield per acre, 18 bushels 54 lbs., weighing 59 lbs. per bushel; a very strong-growing variety.

Golden Vine.—Soil and treatment the same as *Pride*; $\frac{1}{2}$ acre. Sown 27th April, $2\frac{1}{2}$ bushels per acre; not injured by cut-worms; ripe 17th August; time to mature, 111 days; yield per acre, 44 bushels 7 lbs.; weight per bushel, $63\frac{1}{4}$ lbs.

EXPERIMENTS WITH TURNIPS.

The turnips grown on the experimental plots during 1891 were very much injured by a species of rot, which was very prevalent in the neighbourhood of Ottawa. Some varieties were affected more than others, but the injury was very general and resulted in the destruction of a large proportion of the crop. As it is impossible, under such circumstances, to give correct returns of the relative yield of the different sorts, the results of this crop are omitted as far as the experimental plots are concerned. Some particulars will be found regarding the crop obtained on some of the field plots in the 40 acres reported on by the Agriculturist.

EXPERIMENTS WITH MANGELS.

Fifteen varieties of mangels were sown in rows $2\frac{1}{2}$ feet apart, and cultivated with a horse cultivator. The soil was sandy loam, manured in 1888, dressed with a coating of unleached ashes; 150 bushels to the acre, in 1889, and 400 lbs. per acre,

in 1891, of Royal Canadian fertilizer. There were two series of plots; the first was sown on the 8th of May, the second on the 18th, and both were pulled on 15th and 16th October. The yield per acre has been calculated from the crop of three rows, each 66 feet long. As stated in the report for 1891, estimates based on the returns from small plots usually show a relatively greater yield than when founded on the results of larger areas, but since all the varieties were treated alike and the soil was very similar throughout, these figures form a fair basis for the comparison of varieties. In this instance, quite a number of the plots were injured, and some of them entirely destroyed by cut-worms. On this account the records are incomplete; only two of the varieties named in the second series are found in the first.

	Yield per Acre.		Yield per Acre.	
	Tons.	lbs.	Bush.	lbs.
<i>First Series of Plots, Sown 8th May.</i>				
Mammoth Yellow Intermediate.	32	20	1,067	
Mammoth Long Red or Gatepost.	30	720	1,012	
Mammoth Long Red	30	324	1,005	24
Kinver Yellow Globe.	28	496	941	36
Mammoth Long Red.	27	252	904	12
Yellow Flesh Tankard.	26	1,328	888	48
Golden Flesh Tankard.	22	1,672	761	12
Giant Yellow Globe.	21	1,560	726	
Yellow Intermediate or Ovoid.	21	1,296	721	36
New Giant Yellow Intermediate.	20	1,712	695	12
Mammoth Long Red Selected.	20	392	673	12
<i>Second Series of Plots, Sown 8th May.</i>				
Yellow Intermediate.	29	1,796	996	36
Mammoth Long Red.	26	8	866	43
Champion Yellow Globe.	25	1,612	860	12
Golden Tankard.	25	1,612	860	12
Kinver Yellow Globe.	23	1,652	794	12
New Giant Yellow Intermediate.	22	1,804	763	24
Golden Tankard.	22	1,540	759	
Golden Tankard	22	1,276	754	36
Crimson Tankard.	21	768	712	48

EXPERIMENTS WITH SUGAR BEETS.

Ten varieties of sugar beets have been tested. They were sown in rows 18 inches apart, with the Planet Junior seed drill, adjoining the experimental plots of mangels. The character of the soil and its treatment will be found under that heading. The yield per acre has been calculated from two rows, each 66 feet long, a basis of estimation which is fairly reliable for the purpose of comparing varieties, but one which usually figures up a larger yield than can be got where such roots are grown by the acre. The proportion of sugar contained in each sort has been determined by the Chemist of the Experimental Farms, and the particulars will be found in his report appended. Two of the varieties were kindly supplied by Alfred Musy, Esq., manager of the beet sugar factory at Farnham.

The seed was sown at two different periods, the first set of plots on the 9th and the second on the 19th May. They were all pulled 19th October. On some of the plots the young plants were devoured by cut-worms as soon as they appeared above ground; for this reason the records are not complete.

	Yield per Acre.		Yield per Acre.	
	Tons.	lbs.	Bush.	lbs.
<i>First Series of Plots, Sown 9th May.</i>				
Vaurica Yellow Giant (Vilmorin).....	31	920	1,048	40
"I. B." from A. Musy, Farnham.....	27	560	909	20
Green Necked Brabant (Vilmorin).....	25	1,480	858	
"C. H." from A. Musy, Farnham.....	21	1,340	722	20
Klein Wanzleben.....	18	080	601	20
<i>Second Series of Plots, Sown 19th May.</i>				
Dippe's Klein Wanzleben.....	39	1,640	1,327	20
Bulteau Desprez, from United States Department of Agriculture.....	37	1,020	1,250	20
Vaurica Yellow Giant.....	30	280	1,004	40
"I. B." from A. Musy, Farnham.....	25	820	847	
Vilmorin No. 1 (Vilmorin).....	23	420	773	40
"B. D." from A. Musy, Farnham.....	22	1,760	762	40
Large Sugar (W. Skaife).....	22	1,100	751	40
Klein Wanzleben.....	19	280	638	
Vilmorin's Improved White (Vilmorin).....	18	1,840	630	40
Green Necked Brabant (Vilmorin).....	18	080	601	20

EXPERIMENTS WITH CARROTS.

The carrots were also sown in rows 18 inches apart, with the Planet Junior seed drill, and were cultivated by hand with the Planet Junior cultivator. The character of the soil and its treatment was the same as that for mangels. The yield per acre has been calculated from three rows, each 66 feet long. The first series of plots was sown on the 8th May, the second on the 18th May, and all were pulled on the 30th and 31st of October. These plots were less injured by cut-worms than any of the other roots, hence the record is more complete.

	Yield per Acre.		Yield per Acre.	
	Tons.	lbs.	Bush.	lbs.
<i>First Series of Plots, Sown 8th May.</i>				
Half Long Red Obtuse.....	28	1,346	955	46
Half Long White Lisse.....	27	1,880	931	20
Early Gem or Guerande.....	23	1,226	783	06
Long Red Obtuse.....	23	200	770	
Yellow Intermediate.....	23	053	767	33
Giant White Belgian.....	22	1,320	755	20
Half Long Red Chantenay.....	20	1,360	689	20
Half Long Chantenay.....	20	040	667	20
Large Green Top White Vosges.....	19	573	642	53
James' Intermediate.....	19	280	638	
Large White Vosges.....	18	080	601	20
Long Red St. Valery.....	17	1,640	594	
Long Red.....	16	560	542	40
Long Orange Belgian.....	14	1,626	493	46
<i>Second Series of Plots, Sown 18th May.</i>				
Guerande or Ox Heart.....	32	973	1,082	53
Large Green Top White Vosges.....	28	466	941	06
Early Gem or Guerande.....	27	1,440	924	
Giant White Belgian.....	27	1,440	924	
Half Long Red Obtuse.....	27	1,000	916	40
Improved Short White.....	26	506	875	06
James' Intermediate.....	23	346	772	26
Yellow Intermediate.....	23	053	767	33
Long Red St. Valery.....	22	1,906	765	
New Intermediate.....	22	1,173	752	53
Large White Vosges.....	22	880	748	
White Vosges.....	21	386	706	26
Half Long Red Nantais.....	20	1,946	699	06
Half Long Chantenay.....	20	1,360	689	20
Large White Vosges.....	19	1,453	657	33
Long Orange Belgian.....	18	666	611	
Orange Giant.....	17	1,760	579	20
Scarlet Perfection.....	17	613	576	53
Selected Altringham.....	14	746	479	06

EXPERIMENTS WITH POTATOES.

One hundred and eleven named varieties have been tested during 1891, and 153 seedlings. The soil and treatment was the same as that described under mangels. They were planted in rows $2\frac{1}{2}$ feet apart. The dates of planting and harvesting are given in the tables, the size of the plots, the yield per acre in bushels and pounds, the proportion of marketable and unmarketable potatoes—all those of 2 inches in diameter and upwards being regarded as marketable. The total yield is given, also the weight of the diseased tubers. The results obtained from the named varieties only are submitted in the tables. The yield per acre in most cases has been calculated from the product of two rows, each 86 feet in length:—

Variety.	Date of Planting.	When Harvested	Size of Plot.	Total Yield per Acre.	Yield per Acre of Marketable Potatoes.	Yield per Acre of Unmarketable Potatoes.	Weight of Diseased Tubers in lbs. per Plot.
	1891.	1891.	Feet.	Bush. lbs.	Bush. lbs.	Bush. lbs.	Lbs.
Daisy	May 11.	Oct. 5.	172 x $2\frac{1}{2}$	534 22	476 7	58 15	8
State of Maine	do 9.	Sept. 9.	do	471 3	454 10	16 53	7
Gleason's Late	do 9.	do 10	do	470 10	406 54	63 19	$2\frac{1}{2}$
Chas. Downing	do 8.	do 8.	do	464 18	396 46	67 32	$3\frac{1}{2}$
Frame Early	do 9.	Oct. 5.	do	460 5	413 39	46 26	$7\frac{1}{2}$
Summit	do 11.	Sept. 8.	180 x $2\frac{1}{2}$	450 8	414 38	35 30	22
Sharpe's Seedling	do 12.	do 10.	28 x $2\frac{1}{2}$	445 58			1
Delaware	do 8.	do 7.	172 x $2\frac{1}{2}$	441 31	334 18	107 13	6
Lee's Favourite (Mrs. Foster)..	do 11.	Oct. 5.	86 x $2\frac{1}{2}$	440 40	391 42	48 58	$4\frac{1}{2}$
Early Puritan	do 9.	Sept. 9.	172 x $2\frac{1}{2}$	432 14	373 8	59 6	18 $\frac{1}{2}$
Algoma No. 1.	do 7.	do 7.	do	428	392 33	35 27	0
Burpee's Seedling	do 8.	do 10.	do	425 29	388 20	37 9	11
Green Mountain	do 8.	do 11	do	423 47	366 23	57 24	16 $\frac{1}{2}$
Halton Seedling	do 9.	do 10	do	422 56	350 20	72 36	15 $\frac{1}{2}$
Early Sunrise	do 11.	do 11.	do	422 6	366 23	55 43	9 $\frac{1}{2}$
Alexander Prolific	do 9.	do 9.	do	415 21	356 15	59 6	17 $\frac{1}{2}$
Late Goodrich	do 8.	do 11.	do	403 31	348 39	54 52	2 $\frac{1}{2}$
Early Ohio	do 11.	Oct. 5.	do	400 59	373 8	27 51	10 $\frac{1}{2}$
Pearl of Savoy	do 9.	Sept. 8.	do	397 36	330 55	66 41	3
Pootaluck	do 15.	Oct. 7.	do	395 56	315 44	80 12	2
Select Magnum Bonum.	do 11.	Sept. 9.	do	391 42	334 18	57 24	0
Lee's Favourite	do 7.	do 7.	do	389 10	301 22	87 48	0
Wonder of the World	do 9.	Oct. 5.	do	382 25	360 28	21 57	5 $\frac{1}{2}$
Early Albino	do 8.	Sept. 10.	do	379 2	319 6	59 56	8
Rural Blush	do 8.	do 10.	do	375 40	346 58	28 42	4
Holborn Abundance	do 9.	Oct. 5.	do	375 39	332 36	43 3	1 $\frac{1}{2}$
Burpee's Extra Early	do 15.	do 7.	do	374 49	333 27	41 22	$\frac{1}{2}$
White Star from Dewar	do 9.	Sept. 10.	do	373 59	308 8	65 51	7
Rennie's Stray Beauty	do 11.	Oct. 5.	do	366 22	325 51	40 31	0
May Queen Early	do 11.	Sept. 10.	do	364 42	315 44	48 58	0
Dakota Red	do 7.	do 7.	do	362 9	303 54	58 15	$\frac{1}{4}$
Clarke's No. 1	do 8.	do 11.	do	360 44	339 22	21 22	18 $\frac{1}{2}$
Empire State	do 11.	do 8.	do	360 28	281 57	78 31	24
Vermont	do 8.	do 11.	do	358 47	298 51	59 56	20
Thorburn	do 18.	Oct. —	86 x $2\frac{1}{2}$	357 56	327 33	30 23	0
Sukreta	do 11.	Sept. 8.	172 x $2\frac{1}{2}$	357 6	313 12	43 54	5
Ohio Gunner	do 8.	do 9.	do	354 34	298 51	55 43	18 $\frac{1}{2}$
Dumfries Early White	do 11.	do 9	do	353 42	299 41	51 2	14 $\frac{1}{2}$
Burpee's Surprise	do 11.	do 9.	do	352 52	300 32	52 20	29
Algoma No. 2	do 8.	do 9.	do	349 29	289 33	59 56	1
Crown Jewel	do 9.	Sept. 10.	do	347 48	295 28	52 20	2
Beauty of Hebron	do 11.	Oct. 5.	do	347 48	295 28	52 20	1
Flower of Eden	do 8.	Sept. 10.	do	347 48	307 17	40 31	16 $\frac{1}{2}$
Prairie Seedling	do 11.	do 8.	do	341 3	300 32	40 31	0
Early Eating	do 11.	do 11.	do	339 22	279 26	59 56	10
Gov. H. Foraker	do 9.	do 10.	do	326 42	286 11	40 31	0
Vanguard	do 7.	do 7.	do	323 20	240 36	82 44	2
Blue Bell	do 9.	do 9.	do	321 38	297 9	24 29	3 $\frac{1}{2}$
Early Rose	do 11.	do 9	do	315 44	273 31	4 13	$2\frac{1}{2}$

RESULTS obtained from named varieties of potatoes, &c.—*Concluded.*

VARIETY.	Date of Planting.	When Harvested	Size of Plot.	Total Yield per Acre.	Yield per Acre of Marketable Potatoes.	Yield per Acre of Unmarketable Potatoes.	Weight of Diseased Tubers in lbs. per Plot.
	1891.	1891.	Feet.	Bush. lbs.	Bush. lbs.	Bush. lbs.	Lbs.
Emperor William.....	May 8.	Sept. 8.	172 x 2½	302 54	271 50	31 4	2½
Algoma No. 3.....	do 15.	Oct. 7.	do	302 13	255 47	46 26	8½
Chicago Market.....	do 11.	Sept. 9.	do	301 23	252 25	48 58	8½
Compton's Surprise.....	do 9.	do 10.	do	301 22	251 34	49 48	6½
Rose's New Giant.....	do 11.	do 8.	do	296 18	282 48	13 30	1½
Rosey Morn.....	do 11.	do 11.	do	295 28	244 49	50 39	2½
Richter's Improved.....	do 11.	do 10.	do	293 47	256 38	37 9	4½
St. Patrick.....	do 9.	Oct. 5.	do	284 30	189 57	94 33	45½
White Star.....	do 8.	Sept. 10.	do	276 3	207 40	68 23	8
Carter's Sukreta.....	do 7.	do 8.	do	274 21	224 33	49 48	2
London.....	do 9.	do 10.	do	271 50	222 52	48 58	7
Brownell's Winner.....	do 9.	do 9.	do	270 59	235 32	35 27	7
McIntyre.....	do 15.	Oct. 7.	do	269 18	230 28	38 50	0
Rural No 2.....	do 15.	do 7.	do	262 32	241 26	21 6	0
Prime Minister.....	do 11.	Sept. 8.	do	260 51	210 12	50 39	4½
Minister.....	do 8.	do 8.	do	260	224 33	35 27	0
Corona Beauty.....	do 8.	do 8.	do	254 57	211 3	43 54	10½
Beauty of Beauties.....	do 8.	do 11.	do	254 57	195 51	59 6	2
Cosmopolitan.....	do 7.	do 7.	do	254 57	189 57	65	½
International Seed Co.....	do 8.	do 9.	do	253 15	233 50	19 25	0
Rose's New Invincible.....	do 8.	do 7.	do	250 43	200 55	49 48	2
Sugar.....	do 11.	do 10.	do	248 12	204 18	43 54	1
Richter's Schneerose.....	do 11.	do 11.	do	247 21	193 19	54 2	6
Carter's Delight.....	do 7.	do 8.	do	246 30	189 6	57 24	½
Early Callao.....	do 9.	Oct. 5.	do	244 48	211 53	32 55	1
Early Maine.....	do 9.	Sept. 8.	do	240 36	215 16	25 20	0
Carter's Surprise.....	do 11.	do 11.	do	235 32	167 9	68 23	¼
Carter's First Crop, Ash Leaf.	do 11.	do 10.	do	228 46	195 51	32 55	0
Thorburn's Paragon.....	do 8.	do 8.	do	225 23	175 35	49 48	1
Ruby.....	do 11.	do 10.	do	223 42	158 42	65	0
Brownell's Best.....	do 8.	do 9.	do	216 5	172 13	43 52	4½
Great Eastern.....	do 11.	do 8.	do	205 59	182 21	23 38	2½
Snowflake.....	do 8.	do 9.	do	193 19	140 59	52 20	4½
King of the Earlies.....	do 9.	do 9.	do	193 19	163 46	29 33	3
Ruper Eating Crane.....	do 8.	do 8.	do	192 28	156 10	36 18	¼
Bliss' Triumph.....	do 8.	do 9.	do	168	155 20	12 40	0

SEED TESTING.

The testing of the vitality or germinating power of samples of seed grain sent by farmers from all parts of the Dominion has been continued. During the season 2,957 samples were tested, which is more than double the number which was tested in 1890. Among these there were more than 1,200 samples of two-rowed barley, chiefly from Ontario, which showed an excellent average of about 95 per cent. The house, which was built partly for this purpose, is shown in Fig. 2; it is commodious and

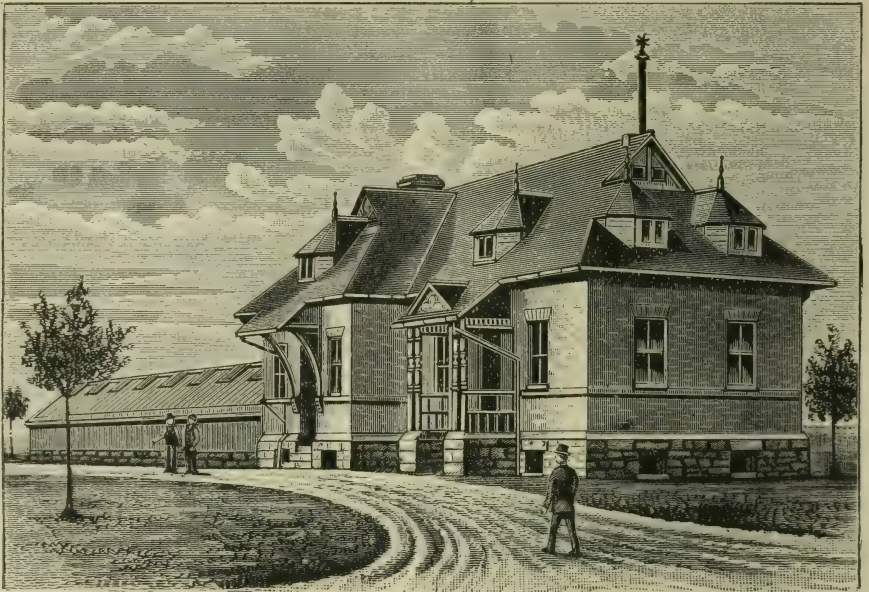


FIG. 2.—Building for seed testing and seed grain distribution.

well adapted for the work. The hinder portion consists of two glass structures, each about 75 feet long, one of which is devoted to seed testing and propagating; the other contains a most instructive collection of named plants and shrubs from all parts of the world. The front part is used for storing seed grain, and it is from this building that the large annual distribution of seed grain is made to applicants from every part of the country, from the Atlantic to the Pacific.

RESULTS of Grain Tests, 1890-91.

Kind of Seed.	Number of Tests.	Highest Percentage.	Lowest Percentage.	Average Vitality.
Wheat	561	100	1	82.3
Barley	1,556	100	4	92.3
Oats	262	100	6	88.8
Corn	82	100	0	66.7
Rye	9	91	66	81.0
Millet	2	75	75	75.0
Buckwheat	10	100	60	84.6
Grass	29	98	0	45.6
Turnips	28	100	0	78.8
Peas	37	100	20	79.9
Carrots	26	84	0	44.6
Clover	9	87	57	66.6
Beans	18	100	2	59.7
Beet	16	68	18	37.1
Mangel	15	94	12	61.8
Chana	2	38	0	19.0
Sugar cane	2	41	19	30.0
Rhubarb	3	29	8	15.6
Onions	3	80	0	45.0
Flax	5	95	75	88.6
Parsnips	4	85	45	60.5
Cabbage	23	92	2	51.6
Cauliflower	5	71	33	51.4
Radish	8	93	31	67.0
Spinach	2	42	23	32.5
Tomato	7	91	31	56.4
Celery	2	18	1	9.5
Lettuce	2	84	60	72.0
Flower seeds	7	87	0	42.7
Tares	1	.....	.....	94.0
Canary seed	1	.....	.....	96.0
Hemp	1	.....	.....	0.0
Asparagus	1	.....	.....	92.0
Pumpkin	1	.....	.....	80.0
Cress	1	.....	.....	68.0
Parsley	1	.....	.....	4.0
Sage	1	.....	.....	6.0
Thyme	1	.....	.....	5.0
Ash	1	.....	.....	0.0
Maple	1	.....	.....	0.0
Fir	1	.....	.....	0.0
Total number of samples tested, highest and lowest percentage, and average vitality..	2,757	100	0	85.6

TWO-ROWED BARLEY.

In the annual report of the experimental farms for 1890 reference is made to the importation from England by the Government of a large lot of one of the best varieties of two-rowed barley for seed, which was sold to farmers at less than the cost of importation, in order to thoroughly test the value of this grain in all parts of the Dominion. It is there stated that a shipment of 50 quarters, 400 English bushels, of the barley grown from that seed, weighing about 52 lbs. per bushel, had been forwarded to London, England, to be malted and brewed by one of the leading brewers there. This barley consisted of five or six lots, grown in different parts of Ontario. It was all forwarded to Ottawa, where the barley was thoroughly cleaned and mixed under my supervision, and the small kernels and as much as possible of the broken grain removed by passing it through a Sizer or Boby machine, so that the sample was fairly uniform in character.

The following report was received in October last by the High Commissioner of Canada, through Mr. A. F. Dale. It contains the result of the brewing of this barley conducted at the brewery of J. Flinn, Esq., of Bishops Stortford, England, and the report is signed by Mr. Arthur O. Stopes, of Colechester:—

"In compliance with your request, I have pleasure in stating to you my opinion of the sample of malt sent me on 23rd May last, which I understand was made exclusively from Canadian barley sent you by the Dominion Government.

"From careful examination of this malt, and from information furnished me by brewers well acquainted with the use of Canadian malt in the Dominion, and also from suggestions made by the well-known brewery expert, Mr. Frank Faulkner, I felt justified in using this malt exclusively without any mixture of other malts. I therefore proved its brewing qualities entirely upon its own merits, and to test it as severely as possible, I brewed a pale ale from it, although I fear the colour is a little higher than I generally get from malt made from English or European barleys.

"The brewing worked easily, and I liked the handling of the goods in tun and the way they spent, indicating from the initial stages the quality of the malt. Each successive stage followed in proper sequence in exceedingly good form; the fermentation was practically perfect, and the condition of the beer at racking was exceedingly good. The final attenuation also was just as I wished, and as a consequence, I think the brewing operations were those well adapted to the malt, and it must have been of good quality to have given such satisfactory results at every stage.

"The stability I have proved to be exceedingly good, indicating soundness of material.

"The extract was equivalent to 87 lbs. per quarter; and coupling all the preceding facts with the judgment I formed of the malt, irrespective of its use, I assay its value 35s. to 36s. per quarter. I may say that had I wished to obtain a greater extract, so as to attain the maximum amount possible, I could readily have increased it, but I deemed it under the circumstances preferable to secure quality rather than quantity.

"The beer after racking has remained entirely satisfactory, and the very numerous people who have tasted it have been almost without exception of opinion that it is exceedingly good.

"Should you wish to have fuller and more complete notes of a more technical class, either as to the nature of the water employed in the brewing and of the malt itself, I shall be happy to place them at your disposal. I assume the above report is sufficient for your present purposes, and I have much pleasure in testifying as a practical brewer to the value that good malt of this class would prove to the brewers who understood its use.

"October, 1891."

This report is highly satisfactory, and shows that good two-rowed barley, such as will meet the approval of the English brewer, can be grown in Canada, and many samples, much better in quality and heavier than this shipment referred to, have been received of late at the Experimental Farm from farmers in Ontario, the growth of 1891.

Favourable reports as to the yield of the barley have been received from every hand, and it is the general opinion that the crop of the two-rowed has averaged much better than the six-rowed. Many reports of yields of 40 to 50 bushels per acre have been received from different points in Ontario, although some of the samples sent in have been light in weight and much discoloured. The buyers in the barley districts in Ontario paid up to the close of navigation from 8 to 12 cents more per bushel for the two-rowed than was offered for the six-rowed; but in many instances no care seems to have been taken to grade the purchases, but light and heavy, bright and discoloured lots, were all mixed together, making a very uneven sample. Much broken grain was also found in some lots. The returns received for some of the shipments are said to have been very unsatisfactory, having resulted in loss to the shippers. This disappointment, however, is clearly traceable to want of care in

threshing, cleaning and grading the grain. The fault lies partly with the farmer, who must exercise more care in handling this crop if it is to bring him its full value. In a letter written by a practical Canadian maltster who recently visited England in connection with the barley business of his firm, he says, when referring to the disappointing sales: "Shippers have not kept faith with the brokers or purchasers as to quality, the bulk was not equal to the sample." Again, "All brewers who saw the Government farm samples at the brewers' exhibition were charmed with them, and millions could have been sold, but the general crop did not equal the samples. I may say that unless the Canadian barley can be threshed so as to avoid the large proportion of half and broken grains, which cause excessive mould on the floors, the trade won't materialize. All English maltsters agree on this point." This gentleman speaks quite hopefully of the Canadian six-rowed barley for the English market, and says it is beginning to find favour with several maltsters who have tried it.

Other Canadian dealers speak more hopefully of the two-rowed barley trade. One says: "The two-rowed barley we have handled this season, grown from English seed, has given us the best of satisfaction, and I believe that all that has gone forward to the old country would have done likewise had it not been badly mixed."

Another buyer who visited England in connection with his barley business writes: "In November sales were made in Great Britain by sample to arrive of both two-rowed and six-rowed. The former was received with much favour by maltsters; the latter did not attract much attention. I am not, however, surprised that the demand for export has fallen off, for many sales were filled with shipments quite inferior to the sample; the result was disappointment and resentment on the part of the receivers." He says, further: "It is a mistake to suppose that the English maltster does not require colour; he does, and the bright sample will in every case take the market there, as in the United States. I desire to impress strongly on farmers the necessity of growing from pure seed, and in harvesting and threshing to carefully avoid mixing. I found a very kindly feeling expressed towards Canada, and a marked desire to trade with her. I am convinced that if we can grow as good barley as we have done this year, and if it is kept pure, we will work into a good trade with the English maltsters."

Enough has, I think, been said to show that if the Canadian farmer will exercise the requisite care in the selection of good, clean seed and in the cultivation of this grain, also in threshing and cleaning it for the market, avoiding all mixing; and if the shipper will see that the bulk of the grain he sends is equal to the samples forwarded, there seems no reason to doubt that a satisfactory trade in two-rowed barley can be established. The maltster in Great Britain is willing to pay a good price for a first-class article.

RESULTS OF EARLY, MEDIUM AND LATE SOWING.

Experiments in this important line of work have been continued, but the same varieties of grain have not been used in every instance. In the experiments conducted in 1890 the Red Fife and Ladoga were the sorts of spring wheat chosen; in 1891 the varieties were Campbell's White Chaff and White Connell. The oats in 1890 were Prize Cluster and Early Race Horse, in 1891 Prize Cluster and Banner, and the barleys which, in 1890, were two varieties of two-rowed, the Prize Prolific and Danish Chevalier, were changed in 1891 to one of two-rowed, the Prize Prolific, and one of six-rowed, the Baxter.

The method adopted in 1890 of six successive sowings a week apart was repeated in 1891, the first sowing in each case being made as soon as the land was fit to receive the seed. The same land was used in both instances, but the arrangement of the plots was changed, so that the oats followed wheat, barley followed oats and wheat followed barley. The land was ploughed in the autumn of 1890, and received a coating of manure of from 20 to 24 tons to the acre in the spring of 1891, which was promptly covered after spreading by a light ploughing.

In the following table the results are presented in a form convenient for comparison:

	Sown, April 21. — Yield, per Acre.	Sown, April 28. — Yield, per Acre.	Sown, May 5. — Yield, per Acre.	Sown, May 12. — Yield, per Acre.	Sown, May 19. — Yield, per Acre.	Sown, May 26. — Yield, per Acre.
<i>Spring Wheat.</i>	Bush. lbs.	Bush. lbs.	Bush. lbs.	Bush. lbs.	Bush. lbs.	Bush. lbs.
Campbell's White Chaff...	47 50	32 50	27 30	29 30	28 30	19 10
White Connell.....	35 50	26 40	30 00	23 20	23 40	27 10
<i>Oats.</i>						
Prize Cluster.....	59 24	84 04	54 24	33 08	53 03	40 00
Banner.....	76 01	79 24	86 26	87 22	78 18	55 30
<i>Barley.</i>						
Prize Prolific.....	65 10	55 35	50 20	51 37	40 40	37 14
Baxter's Six-rowed.....	55 35	67 04	56 32	42 39	34 08	35 30

The crops on the plots for 1891 were much heavier than those gathered in 1890; the difference may be partly accounted for by the liberal dressing of manure which the land received, but probably a greater allowance should be made for the character of the season, which was very favourable in 1891 and very unfavourable in 1890. There are some seeming contradictions in the results for 1891 which can be explained and others for which at present no full and satisfactory explanation can be offered.

The plots of Prize Cluster oats and Baxter's barley which were sown the first week were at the northern end of the series, and were exposed to the full force of a storm of wind, which carried much sand with it, and which swept over the part where these plots were situated a few days after the grain was up. This cut the tender blades almost to the ground and permanently injured the plots. The Prize Prolific barley, Banner oats and the two varieties of wheat were partly sheltered by a slight depression in the land, and thus escaped much injury. From the results of the tests for both years it is evident that the oat crop is less influenced by delay in sowing than either wheat or barley. Some of the other apparent irregularities were partly due to the results of a hailstorm which passed over the farm when the grain from some of these plots was standing, and a part of it was beaten out and lost. This will account for the difference between the crops from the fourth and fifth sowings of the Prize Cluster oats.

Taking the returns of the two years together, the average falling off from week to week in the yield of the four varieties of wheat as compared with the crop from the first sowing is, for the first week 27 per cent., for the second 30, third 43, fourth 45, and for the fifth 52 per cent. Calculating the average loss on the barley in the same manner we find it to be as follows: First week 13 per cent, second 26, third 36, fourth 51, and for the fifth 52 per cent. Leaving out of consideration the first series of oat plots on account of their abnormal character in 1891 and their partial character in 1890, and taking the crop from the second sowing as the basis for comparison, we find the falling off in the successive weeks to be 12 per cent, 24, 26, and for the last sowing 43 per cent, showing that even with the oat crop delay in sowing cannot be practised without loss.

When we consider that the value of the spring wheat crop for the past year, of Ontario alone, taking it at 85 cents per bushel, was \$9,104,807; that of barley at 45 cents per bushel, \$7,263,856; and that of oats at 30 cents per bushel, \$22,502,862—or putting these three together, nearly thirty-nine millions of dollars—the percentage

of loss which occurs between the first and second, or first and third sowings, represents a sum so large that the importance of early seeding cannot be too strongly urged.

FORESTRY.

Tree-planting in the forest belts on the Central Experimental Farm has been continued, and about 3,100 trees have been set out along the northern boundary of the farm. It is proposed to continue this planting until the whole length of this side of the farm is furnished with a continuous shelter belt. This will eventually prove a very attractive feature, and also furnish important data in regard to the relative growth of the more important trees of economic value in this country, so that information may be available to those who may need in the future to plant trees either for shelter, ornament, fuel or timber.

The belts already planted are making good growth; the avenues and hedges are also doing well. The clumps of ornamental trees and shrubs about the buildings and along the roads have become well established, and already add much to the appearance of the place.

In this connection I desire to acknowledge the kindness of Prof. Sargent, of the Arnold Arboretum, Jamaica Plains, Mass., who has generously donated to the experimental farms 81 species of trees and shrubs, many of them rare sorts. A part of these are suitable for planting at Ottawa; the more tender sorts have been forwarded for test to the experimental farm at Agassiz, British Columbia. To Mr. L. Jackson Dawson, the efficient superintendent of the arboretum, my thanks are also due for his kindness in making the selection, comprising varieties so well adapted to our needs.

The distribution of forest trees and forest-tree seeds to settlers on the North-West plains has been continued. In the report of the Horticulturist particulars will be found of the distribution of about 2,000 mail packages of seedling forest trees, also of 4,053 packages of tree seeds, chiefly those of the box elder, Manitoba ash, oak and cherry. This part of the experimental farm work has awakened in the Canadian North-West a very general interest in tree-planting. From the large number of young groves which are thus being established at different points on the great plains, belts and plantations of trees will shortly be planted about dwellings and farm buildings which, in process of time, will afford desirable shelter for man and beast and much improve the general appearance of the country. In a very few years many of these young groves will produce seed, and with tree seeds in plenty, available at so many points, tree culture on the plains will no doubt make rapid advancement.

BUILDINGS.

The extension to the poultry building mentioned in the last annual report has been completed, and will furnish pens for both breeding and laying, as well as some for experiments with cross breeds. The necessary buildings for carrying on the work on the Central Experimental Farm are now nearly completed. They consist of a barn about 145 x 50 feet, with a wing on either side of 100 x 25 feet, one of which is used for the farm horses; the other is fitted up for bulls. This commodious building is shown in Fig. 3:

The silos are attached to one end of this; also an engine-house, from which shafting is run the full length of the barn. There is also an implement house, granary, root-house and piggery. The poultry building has been already referred to; the building for seed testing and the distribution of seed grain is shown on page

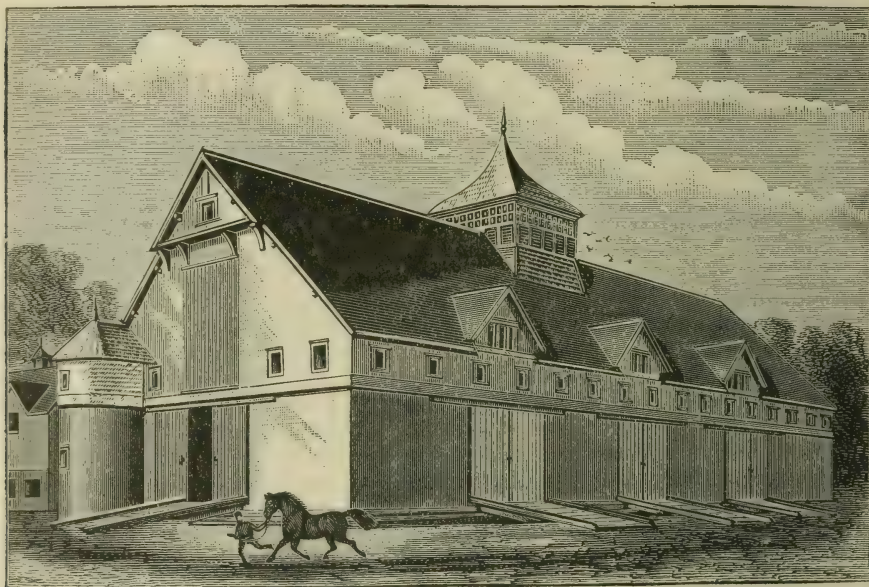


FIG. 3.—Barn and Stables, Central Experimental Farm, Ottawa.

46, Fig. 2. That containing the offices and chemical laboratory forms the frontispiece, Fig. 1. The dairy building is represented on page 88, Fig. 4. The only other building for which there is now a pressing need is one for sheep, which should also have some additional accommodation for young stock.

ANNUAL VISITS TO THE BRANCH EXPERIMENTAL FARMS.

NAPPAN.

The experimental farm for the the Maritime Provinces, located at Nappan, N.S., was twice visited during the year. The first visit was during the planting season, in the spring, when opportunity was afforded for arranging the various clumps of trees and shrubs which are to serve the purposes of ornament and shelter about the buildings, also the avenues and shelter belts along the boundaries of the farm. These will greatly help in beautifying the place, and in a very few years, from the shelter they will afford, prove useful as well as ornamental. The second visit was paid in the autumn. The grain crops were all gathered before my arrival, and they were unusually good, as will be seen from the report of the superintendent. I had the privilege of inspecting the crop of roots, of which there were about five acres. They were all good, the turnips especially so; these latter averaged over 1,000 bushels to the acre. The farm is improving in appearance and fertility from year to year, and that part of the land which at the time of purchase was believed by the neighbours to be almost worthless from exhaustion, has, with proper working and manuring, become quite fertile, and produces now some of the best crops grown on the farm.

BRANDON.

The journey westward was begun on the 11th of August, and Brandon was reached on the 16th. As viewed from the hotel in the city, it was evident that the

young avenues had made good progress and that the trees and shrubs generally were making satisfactory growth. One of the most striking features from this distant view was a field of Ladoga wheat, which extended from the base of one of the gradually-rising bluffs on the valley bank some distance up its side. Part of it was cut, and that which was standing was of that warm brown colour which indicated ripeness, while the other varieties on either side appeared comparatively green.

On closer inspection everything was found to be progressing satisfactorily. The grain crops were nearly all more or less lodged, as the result of a severe rain and wind storm which had occurred a day or two previous. The straw was long and the heads heavy, which prevented most of the grain from rising again, and thus somewhat lessened the yield. The returns, notwithstanding, are exceedingly good. The forest belts and young fruit trees were carefully examined and notes taken of the most promising sorts. The barn and stable was completed and ready for occupation. Several of the most useful breeds of stock have since been supplied, which makes this now one of the most interesting and instructive features of the farm work. The superintendent's residence was also finished, and was occupied shortly after.

A constantly increasing interest is manifested by the farmers of Manitoba in the operations going on at this farm, and the number of visitors who go there to gain information and experience each year is now very large. The experimental work carried on under Mr. Bedford's superintendence is favourably spoken of on all hands, and the experiments tried from year to year are proving a valuable guide to the farming community.

VISIT TO MELITA.

The day after my arrival in Brandon, the Souris section of the western division of the Canadian Pacific Railway was opened, and by kind invitation of the assistant superintendent, Mr. J. Murray, I was privileged to travel with the first regular train as far as Melita, $66\frac{1}{2}$ miles from Brandon. For the first 8 miles to Kenmay the train runs over the main line, then turning south 16 miles brings the traveller to the Souris river, whose wooded banks lend a charm to the scenery. Another 14 miles brought us to Hartney, one of the new towns recently started, and after journeying 26 miles further, Melita, the present terminus, was reached. This town, which was said to be only one year old, had a population of about 300, and seemed to be growing rapidly. Through the courtesy of one of its enterprising residents, Mr. G. L. Dodds, I was driven to see several of the neighbouring farms, where the crops gave promise of an excellent yield. The country looked well the whole length of the route; most of the land seemed to be good, and settlement was progressing rapidly. Several new towns seen along the line, from two weeks to two or three months old, were struggling rapidly through their babyhood; most of them could boast of an elevator built or building, and one or more stores, surrounded by dwellings of that diversified character so general in the newly-established towns of the west.

INDIAN HEAD.

On the 20th of August the farm for the North-West Territories was reached, where the field and garden crops, the forest trees and fruits were examined, and their condition and progress recorded. The grain was all standing well, and gave promise of an abundant harvest, but in consequence of the moisture of the soil, resulting from an unusual rainfall and cool damp weather, the grain was from a week to ten days later than usual. For this reason some of the crops did not ripen early enough to entirely escape the frost, although it did not reach this district until about two weeks after it had occurred in Manitoba. A very large proportion, however, of the grain ripened here before frost.

The forest trees planted in blocks and shelter belts are making good progress, but are not growing so rapidly as those at Brandon. The results of the tests of fruit trees have not thus far been very encouraging; but most varieties of small fruits grow well in the rich soil found here, and many of them are proving hardy.

The herd of cattle is increasing, and the animals doing well. The use of the bulls is a great advantage to the farmers of the district.

On the 22nd some of the neighbouring farms were visited and the crops examined. Several miles of luxuriant wheat fields were seen on the Bell farm and on the recently established farm of Lord Brassey. The crops on many smaller places were also inspected. Everywhere the wheat looked well, and the growth was luxuriant, but it was noticed here as well as in Manitoba, that wheat on summer fallow where the land was heavy and had been well farmed was much later than that growing on lighter and poorly worked soil. This was a result of the unusual rainfall, and should not lessen confidence in summer fallowing, as such a condition may not occur again to the same extent for years.

Leaving Indian Head on the 23rd, a day was spent in the Regina district, where the crops were also very promising; a drive of about 40 miles enabled us to see many of the neighbouring farms, on most of which the farmers subsequently reaped a rich harvest.

VISIT TO PRINCE ALBERT.

On the 25th an early start was made for Prince Albert. After leaving the Qu'Appelle valley the land along the line of railway seemed light and gravelly, but after crossing the river near Saskatoon the soil looked much more fertile. Soon the appearance of the country was entirely changed as we entered on what is called the fertile belt, which extends from south of Duck Lake to a long distance beyond Prince Albert. This district is in many parts well wooded and intersected with lakes and streams, and most of the soil is a rich, black, sandy loam. Prince Albert was reached about dusk.

The next day a drive of about 40 miles was taken, covering part of the country on either side of the town. A number of farms were visited, among the rest those of Mr. T. Mackay, Mr. T. Miller Mr. Wm. Plaxton and Mr. T. Scott. Much of the Ladoga wheat grown in this section had been cut and some of the Red Fife was nearly ready. Nearly all the wheat was subsequently harvested without injury from frost. The country is remarkably pretty and park-like, undulating, and intersected at many points by groves of woodland and belts of timber, consisting of spruce, jack pine, tamarack, poplar, birch and other trees. The Saskatchewan here is a fine navigable river. In the evening a gathering of townspeople and farmers assembled to listen to a talk on the work of the experimental farms. The opportunity was also improved by pointing out the advantages of mixed farming, for which, from the presence of abundant shelter, the luxuriant growth of grasses, and a plentiful supply of water for stock, this part of the country seems specially adapted.

Returning the next day, Moose Jaw was reached on the 28th, where another drive of about 30 miles was taken among the neighbouring farms. The crops here, as at Regina and Indian Head, were excellent, but they were later than those at Prince Albert.

THE SPULMACHEEN AND OKANAGON VALLEYS.

Journeying westward, the next point of divergence was Sicamous, B.C., from which point entrance can be made to the fertile Spulmacheen and Okanagon valleys. The conveyance for the first part of the journey, which was begun on the 3rd of September, was a steam hand-car, which made a daily trip to Enderby over the new line of railway then under construction to Vernon. This was an open conveyance with two seats, capable of accommodating six passengers and the engine driver, who stood behind to feed the little engine with fuel and regulate the speed of travel. Such a conveyance afforded a full view of the scenery, which was very fine. Lake, woodland, mountain and valley in rapid succession, or combined in endless variety of form, made up the ever-changing panorama. Smoke from some burning woods in the neighbourhood sometimes interfered with the view; but for this, the bright sunny day would have been perfect. A ride of 25 miles in the steam hand-car

brought us to Enderby, a thriving village in the Spulmacheen valley, where there is a large milling industry which supplies the greater part of the flour used on the Pacific coast. Here a vehicle was waiting to take us to Lansdowne, another village six miles distant, where another conveyance and driver was engaged for the whole journey to Mission and return to Enderby. From Enderby to Lansdowne the road passes through a beautiful part of the valley, where there are some very fine farms, on some of which the grain had been harvested and stacked; on others the golden sheaves were still stooked in thickly-set groups over the fields. A visit was paid to the farm of M. Lumby, Esq., who has a very fine estate of 1,200 acres. Most of his grain was housed, but from the appearance of the bright and thickly-set stubble on his fields it was evident that he had gathered a bountiful harvest. His crops are all grown without irrigation. Near his residence, which is prettily situated near the bank of a small stream, are some groups of magnificent specimens of the "bull pine" (*Pinus ponderosa*), a variety with very long needle-like leaves, one of the most useful of all the trees found here in the valleys and on the hill sides. They grow to a great height and large size, and an average tree when felled will make several large logs for the lumberman.

At Lansdowne several small orchards were seen. The apples, pears and plums were making thrifty growth, and some of the young trees were bearing fruit. On the journey from Enderby to Vernon a team was passed drawing a large waggon loaded with watermelons which had been raised on a ranch near by, and which were being taken to Enderby for shipment to distant points. Vernon, the terminus of the new line of railway, was reached about 7 p.m., after a delightful drive through a charming country.

Many new buildings were going up in this thriving town, which promises in the near future to be an important place in the Okanagon valley. It is well situated, on a level plain, well watered by a mountain stream which affords facilities for irrigation, without which fruit-growing or gardening is somewhat uncertain here.

On the morning of the 4th a journey to Mission was undertaken. The first part of the road lay over the hills, which rise to the height of 600 or 700 feet, from the summit of which a lovely view is had of a charming sheet of water known as Long Lake, and for many miles the road lay very near its banks. About three miles north of Mission a halt was made to inspect a promising young orchard on the ranch of Mr. Whelan, in which was found many varieties of apples, pears, plums and cherries, all making very thrifty growth. Many of the apple, pear and plum trees were well laden with fruit. Several peach trees were seen on this place, but no peaches, excepting on one tree, where there were several small specimens, which looked like a seedling fruit. There was an almond tree also here with a few almonds growing on it. On arrival at Mission early in the evening a visit was paid to the ranch recently purchased by Lord Aberdeen. This is a fine piece of valley land, nearly level and well watered by Mission creek, so that irrigation is practicable over the greater part of it. Several acres were already planted with large and small fruits, and we were informed that it was intended to plant much more largely during the coming season. That part of the Okanagon valley of which Mission is the centre is said to be about 16 miles long and 5 or 6 miles wide. There is a small orchard on the property adjoining Lord Aberdeen's, on which there was some very fine apples and Bartlett pears. There were also a few trees fruiting well in the garden worked by the Brothers at the Mission. A limited amount of grain is grown, stock-raising being the principal industry. Much of the soil in these valleys is a rich black loam with a clay subsoil; most of that along the hill-sides is lighter. Heavy crops can be grown wherever water for irrigation is available, and it is said that grain and other farm crops can be grown as far as Vernon without irrigation; but south of this the returns are very uncertain where no water is at command.

Returning to Vernon the following day we found a very fine collection of young bearing fruit trees in the garden of Price Ellison, Esq., a gentleman who kindly volunteered to go with us to Mission. To this genial companion we owe a

debt of gratitude; but for his guidance and thorough knowledge of the country, we should have missed many an important fact and had a much less enjoyable time.

AGASSIZ.

This most westerly of the experimental farms is improving rapidly. More than one hundred acres are now under cultivation, several large orchards have been planted, and many fruit trees and vines have been put out on the bench land, about the base of the mountains. Many additions have been made to the list of fruit trees, vines, forest and ornamental trees and shrubs—the collection now includes nearly all the varieties at present obtainable, which promise to be useful to the country. The value of this farm as a testing ground for that part of the province lying within the coast climate will be very great, and the information which will soon be available will be highly prized both by old residents and incoming settlers.

A commodious and conveniently-situated dwelling has been erected for the superintendent, and a barn and stable contracted for which, it is expected, will be completed in July next.

SUMMARY OF REPORTS OF OFFICERS.

REPORT OF THE AGRICULTURIST.

The important topics discussed in the report of the Agriculturist are presented in five divisions, each of which contains much valuable information. In the first division, headed "cattle," the value of different sorts of food for the economic feeding of cows and the fattening of steers is treated of, and the relative cost of the different rations. The results of experiments in varying the quantity of meal in the rations are also given. The information gained points clearly to the great value of corn ensilage as a cheap and nutritious food, of that succulent character most desirable for winter feeding.

Part 2 contains valuable data in reference to the fattening of swine, with such particulars as to the cost of producing pork, from certain kinds and mixtures of food, as will make this section of the report very serviceable to farmers in all parts of the Dominion. The great stimulus which has been given to the production of pork during the past year will make this information most timely and useful.

The results of the experimental dairy work embodied in Part 3 point to the most economical methods of treating milk for the manufacture of butter. The varying conditions brought about by different sorts and combinations of food, by advancement in the period of lactation, and the variations in the quantity and quality of these products arising from treatment by different methods, from peculiarities of constitution in the cow or from other factors not yet fully understood, make this chapter most interesting and useful to all those who are engaged in the dairy industry.

The setting aside of forty acres of land for a special line of work, with the view of showing how many cows can be maintained with the crops which that acreage will produce, forms the subject of Part 4. Judging from the experience thus far gained, it would appear that on most farms a larger number of cattle than are now kept might be maintained, bringing increased gain to the farmer.

In the 5th division, which treats of fodder corn and the silos, the results of the many tests which have been made during the past year are given. There will also be found the yields of the different varieties under different methods of cultivation, experiments in making ensilage, with particulars as to the character of the products obtained, with much other useful information on this very important subject.

REPORT OF THE HORTICULTURIST.

The report prepared by Mr. John Craig, the Horticulturist of the Central Experimental Farm, contains a large fund of useful information related to the growing of

fruit and vegetables. The results of the experience gained during the past few years, both in Canada and the United States, with the hardier forms of Russian apples, and the particulars regarding the quality and relative hardness of the different sorts, will be read with much interest by those who desire to cultivate apples in the more northern portions of the Dominion. The remarks on hardy sorts of plums, pears and cherries will also repay a careful perusal.

The very full notes given by Mr. Craig on the many varieties of grapes which were ripened on the Central Farm last year will be very valuable to those engaged in growing this fruit for market, as well as to amateurs, and to many readers it will no doubt be a revelation to learn that so many fine sorts of this refreshing fruit can be ripened at Ottawa. That portion of the report which treats of the different varieties of small fruits will, it is hoped, be acceptable also to a large class of readers.

The comparative tests of varieties of beets, cabbage, celery, pease, peppers and tomatoes, as well as the results of the influence of certain fertilizers on the latter vegetable, will be a valuable guide to many.

Details concerning the distribution of seedling forest trees to the settlers on the North-West plains and to some other remote points for test will also be found in this report, with a brief summary of the results as far as they have yet been reported. Reference is also made to a further distribution of tree seeds and of small fruits for test in the more remote districts, where they are less easily obtainable through the ordinary commercial channels.

A report is also given of further experiments which have been carried on during the past year, with the use of fungicides, in the treatment of apple scab and grape and gooseberry mildews; also on the effect of using Paris green for the apple worm, mixed with the fluids to be used for the scab. Plain instructions, which any intelligent fruit-grower can follow, are given for the preparation of the various mixtures recommended.

REPORT OF THE CHEMIST.

The first division of this report gives the results of the analyses of 24 samples of soil from different parts of the Dominion, many of them representing large areas in the localities from whence they were taken. One represents that part of the alluvial soil in the valley of the Fraser, in British Columbia, known as the delta lands. Two analyses are reported on from the North-West Territories, one of black sandy loam, which is a sample of the black soil in what is commonly designated the fertile belt, the other the underlying subsoil. This formation is more or less continuous over a wide area of country from the western part of Lake Manitoba, through Prince Albert and Edmonton to the foot-hills of the Rocky Mountains. These samples are from Yorkton, Assa. Three others are alkaline soils from Manitoba and the North-West Territories. There are also included in the list soils from Ontario, Quebec and Nova Scotia.

Swamp mucks, muds and peats are referred to in Part 2, where the results of the analyses of twenty-one samples are given. These show that both muck and peat are usually of considerable value as fertilizers, and especially is this the case when they are composted with manure from the stable or barn yard. An analysis of gas liquor is also submitted, and its probable value as a fertilizer discussed. A considerable number of analyses of roots used as food for cattle are reported on, viz., of carrots, turnips, mangels and sugar beets. The results of some further work on corn are also given, showing its comparative value at different stages of growth; samples of ensilage have likewise been examined and their constituents determined.

The component parts of several samples of "condensed milk" of the most popular brands have also been ascertained. Tests have been made of the character and relative purity of twenty-nine samples of well water from farmers in different parts of the Dominion and information of much value furnished. Practical tests have also been made with mixtures of solution of soap and Paris green, with the view of determining whether a combination of this sort would lessen the poisonous effects of

the Paris green. The results show that this useful insecticide may be mixed with soap solutions without materially interfering with its strength.

REPORT OF THE ENTOMOLOGIST AND BOTANIST.

In the entomological part of this report attention is called again to the importance of spraying with Paris green and water for certain insect pests, and evidence is given of the fallacy of some statements lately made in an English paper as to the danger of using fruit from trees so sprayed. The facts cited by Mr. Fletcher show that no injury whatever can arise from such use.

Reference is made to damage during the past year caused by several injurious insects, among others, the Eye-spotted Bud Moth, which injures the apple tree; the Pear Leaf Blister, a small gall on the leaf of the pear produced by a very tiny mite; the Clover Root Borer, an insect not recorded as occurring in Canada before; and the Pea Weevil, which is said to be on the increase in some parts of the country. An account is also given of the occurrence of the Red Turnip Beetle, which attacks turnips and radishes in different parts of the North-West Territories.

The botanical portion contains an article on smut in grain with details of the most useful remedies. This will commend itself especially to the farmers of the North-West, where the "bunt" or "stinking smut" has of late been so prevalent and so detrimental to the crop.

In the experience given of the tests of native and foreign grasses at Ottawa during the past season, Mr. Fletcher has presented many useful facts. Some of the experiences of settlers in Manitoba who have tried some of these varieties is also related. This subject is deserving of careful attention and study.

A most important chapter to farmers is that on weeds. The necessity for information as to the proper treatment of these pests, with a view to their eradication, must be generally admitted. A weedy crop seldom gives satisfactory returns; the loss which arises depends partly on the fact that weeds take from the soil some of the elements of fertility which the growing crop requires, and also for the reason that the presence of numerous and thrifty-growing weeds prevents the free access of air and sunlight, so necessary to vigorous growth.

REPORT OF THE POULTRY MANAGER.

This report opens with a discussion of the subject of the winter laying of fowls, where some useful data is given with reference to the effects of different methods of feeding in the production of eggs. The breeds of fowls which have been found to lay best at the Central Experimental Farm during the winter are enumerated, and the proportion of eggs hatched from sittings of eggs of the various sorts of fowls is also given, with the most successful methods of treatment of the young chickens after they are hatched.

Particulars are given with regard to the dates at which the young pullets in the poultry house began to lay, showing that the White Leghorns, Wyandottes and Plymouth Rocks are among the earliest in this respect. The diseases of poultry are also discussed and remedies suggested. Further details are given of the examination of eggs long kept, which, with the results of the tests made last year, go to show that eggs when kept under the conditions described are not so perishable as is commonly supposed. These experiments have not as yet thrown much light on the question as to how eggs become offensive and putrid.

The important subject of the weight of eggs is dealt with at some length, and particulars are given of the weights per dozen of those from the fowls of all the leading breeds.

EXPERIMENTAL FARM, NAPPAN, N.S.

In the report of the superintendent of the experimental farm for the Maritime Provinces, the results of some instructive tests are given of varieties of wheat, many of which have yielded good returns. The crops which have been gathered from the

experimental plots of oats are exceptionally large, showing that the season has been very favourable at Nappan for this grain. Some large yields of barley have also been obtained, although most of the samples are deficient in weight.

The tests conducted with a number of different sorts of corn indicate that the growth of this useful crop for ensilage purposes in the Maritime Provinces is likely to be attended with success. The experiments with mangels, turnips and carrots have also been very successful.

The advantage resulting from the draining of so large a part of the land under cultivation begins now to be apparent in the increased crops.

The useful breeds of dairy cattle which have been provided at this experimental farm for the Maritime Provinces will, it is hoped, aid in the improvement of the stock of these provinces for dairy purposes, and will doubtless prove of special value to those farmers who are near enough to Nappan to avail themselves of the facilities for improvement which the presence of these animals will give.

EXPERIMENTAL FARM, BRANDON, MANITOBA.

In the report of the superintendent of this farm, Mr. S. A. Bedford, there will be found a large array of useful facts, the results of much careful work, which will be valuable to the settlers in Manitoba. The many tests with wheat, oats and barley, showing the length of time required to mature the different sorts, the varying results obtained by sowing on different classes of soil, by cutting the grain at different periods of ripeness; comparisons of the results of the use of the disc harrow with spring ploughing; of different methods of treating summer fallowed land; the use of different quantities of seed per acre; the relative returns from the use of the ordinary drill, the press drill and the broadcast seeder, and the yields from fall and spring ploughing, will all be read with much interest by the farmers of that province, as well as by those of the North-West generally. The results of experiments with smudges are also given in this report.

One of the most important series of results which Mr. Bedford has reported on relates to the growing of mixed grain, and cutting and curing it in the green state as hay for the winter feeding of cattle. The problem of supplying a sufficient quantity of winter food for the rapidly increasing herds of stock in the North-West was a pressing one, and the practical way in which it has been solved by the tests made at the experimental farms will have an important bearing on the stock and dairy interests of the future in these fertile portions of the Dominion. Mr. Bedford has shown that by sowing a mixture of oats and tares more than five tons per acre of nutritious hay can be produced in a favourable season, that such a crop can be sown after the grain is all in, and harvested before the grain harvest begins, and thus ample provision may be made by the use of comparatively few acres of land for the winter sustenance of a large herd of cattle.

The successful growing of fodder corn and the making of ensilage therefrom will prove another useful factor in developing the dairy interests of Manitoba, while the experiments with native and hardy imported grasses and clovers promise eventually to provide improved pasturage for the summer months. The satisfactory crops reported of mangels, carrots and turnips indicate that there need be no lack of variety in the food which can be stored for the winter feeding of cattle if farmers will only avail themselves of the advantages which the country offers.

The strains of dairy and beefing breeds of cattle which have been introduced during the past year at the Brandon experimental farm will it is believed offer good facilities for improving the stock in that part of the province. The use of frozen wheat and the coarser grains for feeding pigs and steers will also it is hoped show a more profitable way of disposing of these low-priced products at home than by shipping them out of the country.

Further reports on the tests of large and small fruits are also given, which are on the whole encouraging; so also are the results of further experiments with forest

and ornamental trees and shrubs. The preliminary lists which Mr. Bedford has prepared of the hardy, half hardy and tender sorts, as a guide to settlers who desire to ornament their homes or provide wind-breaks for their dwellings and out-buildings, are deserving of careful perusal by all who take an interest in this subject.

EXPERIMENTAL FARM, INDIAN HEAD, N.W.T.

The report of the experimental work carried on at the farm for the North-West Territories contains much that will be useful to the settlers who are farming in that part of the country. There are so many variations in climate on those vast plains that the results of tests made in eastern Assiniboia cannot always be repeated to the same advantage in Saskatchewan or Alberta, while other classes of experiments may be carried on with greater success. Nevertheless, much of the more important work which is being done at Indian Head under the superintendence of Mr. A. Mackay may be followed with advantage by the farmers in most parts of the Territories.

Much of the experimental work with grain which has been referred to when speaking of the farm at Brandon is being conducted on very similar lines at Indian Head. All the more promising varieties of cereals are being tested here, also the different systems of treatment and methods of cultivation, with the view of ascertaining what sorts of grain and what plan of procedure promises the best results.

In addition to what has been referred to, experiments have been made in sowing wheat at different depths in the soil, to ascertain the results of sowing different grades of frozen wheat as seed, comparing the returns from grain grown on land which has been fall ploughed with those from summer fallow, also the results of sowing after roots as against summer fallow. Smudges have also been tried as a protective measure against autumn frosts, and evidence submitted which shows that when a sudden drop in temperature of 8 or 9 degrees of frost takes place, as was the case at Indian Head, smudges are of no avail. Whether they will prove useful or not when the frosts are less severe has not yet been fully determined.

One of the most important series of experiments conducted at Indian Head during the past year is that with smutted grain. The "bunt" smut has been a very serious pest for many years past and has been more prevalent than usual during 1891. The wheat grown by many farmers which would otherwise have realized the best prices has, from this cause, been much depreciated in value, and in some instances become quite unsaleable. The total annual loss to the farming community in the North-West from smut is immense, and would be difficult to estimate. Mr. Mackay selected for his test one of the worst samples of smutty wheat to be found, and in sowing this untreated, about one-half of the crop consisted of smutted ears. By the use of blue stone (sulphate of copper) dissolved in water and applied to the grain in the proportion of one pound of the chemical to ten bushels of seed, the proportion of smutted heads was reduced to less than 15 per cent, and by using the same quantity in the treatment of five bushels the proportion was reduced to less than one per cent. Results very similar to these were obtained last year by Mr. Bedford at the Brandon experimental farm, and this disease may now be regarded as one which the farmer can himself control by taking the precautions referred to. The fact that smutty ears often occur in grain grown from seed believed to be quite free from smut would indicate that smut spores in the soil may attack the grain and bring on the disease. Seed treated with the sulphate of copper would in all probability be able to resist attack in this direction also. As no farmer would think of sowing seed so very smutty as that which was used in the experiment referred to, it is probable that the use of one pound of the sulphate of copper to ten bushels of seed grain would be sufficient to ensure almost entire freedom from this trouble.

Indian corn has not been found so satisfactory a crop at Indian Head as at Brandon; it has not attained the same weight of growth or degree of advancement. Excellent results have, however, been obtained by growing different mixtures of

grain to be cut green and cured for winter fodder; and this part of the report will be read with great interest by the farming community.

The tests with garden vegetables, fruits, forest trees and flowers, will prove a comparatively safe guide to those who desire to enter there on any of these branches of work. The stock department at the Indian Head farm is already beginning to demonstrate its usefulness, and has become an attractive feature in connection with the general experimental work.

EXPERIMENTAL FARM, AGASSIZ, B.C.

The report of the progress made at this farm is also very gratifying. Since the work was begun in August, 1889, 105 acres have been cleared of brush and stumps and brought under cultivation, 26 acres of which have been planted with fruit. Taking into consideration the condition of the land, the crops reported may be considered as very good.

The yield of wheat, barley and oats, sown in successive crops a week apart, for six weeks, seems to show that, as far as these cereals are concerned, there is no special advantage in early sowing in that part of British Columbia. During the early part of last year, when the weather was cold and wet, much of the seed early sown was injured by these unfavourable conditions; a repetition, however, will be needed of such experiments for several years, before any general conclusions can be drawn from them.

There being more than the usual amount of summer heat last year, the season was favourable for corn, and the crop of the heavier-yielding sorts ranged from 20 to 28 tons per acre. It is worthy of notice that the corn planted in hills, in nearly every instance, exceeded in weight of crop that sown in rows, showing the great advantage to the plants of plenty of air and light.

The yield of the plots of pease was quite phenomenal. The heaviest crop was given by the Mummy pea, 128 bushels 51½ lbs. per acre; next in order was the Crown, with 116 bushels 15 lbs. per acre, closely followed by the Prince Albert, with 115 bushels and 25 lbs. per acre.

A new fodder plant which has been largely advertised, *Lathyrus Sylvestris Wagneri*, has produced seed quite freely at Agassiz, while at Ottawa it was almost an entire failure in this respect. The vines also made a very strong and vigorous growth, but Mr. Sharpe was unable to induce either the cattle or horses to eat any of it.

The crops of turnips, mangels, carrots and sugar beets have been excellent, and the heavy weights produced per acre of these succulent nutritive roots, and the ease with which they can be preserved in that mild climate, is a most encouraging indication of the future possibilities of dairying and stock-raising in British Columbia. The experimental plots of potatoes have also yielded remarkably well. The prevalence of rot in some of the varieties shows the importance of thoroughly testing the sulphate of copper as a remedy, which is now being so extensively used in Europe for this disease.

The results of the planting of fruits have been most encouraging. The growth of the trees has been very luxuriant, and it is expected that a large number of the varieties planted will bear fruit during the coming season. The future prospects for fruit production in that province are very bright, and no effort will be spared in the endeavour to made the testing grounds at the experimental farm as useful as possible to the settlers. From the particulars given by the superintendent in his report, it will be seen that examples of every promising sort which could be obtained are under trial there.

EXHIBITIONS.

Extensive collections of the products of the experimental farms were shown at several of the larger exhibitions. At Montreal an excellent display was made; so also at Toronto, London and Ottawa. These collections do not compete in any way with other exhibitors, and are so arranged as to make them as instructive as possible. In this way many farmers who visit these fairs become familiar

with the work of the experimental farms, and the opportunity is afforded them of seeing many new and useful varieties of farm products. For the preparation of these exhibits and the successful carrying out of the arduous task of putting them in place, and of giving information at the fairs to all enquirers, we are indebted mainly to the farm foreman, Mr. John Fixter, to my assistant in the experimental department, Mr. W. T. Macoun, and to the accountant, Mr. W. H. Hay. These officers have been untiring in their devotion to this work, and much of the success which has attended these exhibits has been due to their persistent efforts and to the taste and skill which they have shown in the arrangement of the displays.

Similar work has been carried on by the superintendents of the several branch farms, references to which will be found in their reports.

CORRESPONDENCE.

The following is a summary of the mail matter received and despatched at the Central Experimental Farm during the year 1891:—

	Letters Received.	Letters Sent.
Director.....	7,544	5,256
Agriculturist and Dairy Commissioner.....	2,752	2,349
Horticulturist.....	891	1,307
Chemist.....	592	771
Entomologist and Botanist.....	1,894	1,727
Poultry Manager.....	363	356
Accountant.....	1,191	1,082
Total.....	15,227	12,848
Bulletins, reports, &c., sent out.....	203,353.	

This work is particularly heavy on all the officers during the early spring months, when the mails frequently bring to the office from 150 to 200 letters a day. Many of these require time and research to obtain the information asked, and it is not possible, with the limited staff available for the work, to answer every letter promptly, but answers are forwarded as fast as the work can be overtaken.

ACKNOWLEDGMENTS.

Before closing this report for the year, I take much pleasure in acknowledging my indebtedness to all the officers of the Central and branch experimental farms for the zeal they have manifested and the care they have exercised in bringing to a successful issue the different branches of work which have engaged their attention. To the foremen and employes acknowledgements are also due for faithful services. The valuable services rendered by the farm foreman, Mr. John Fixter, and my assistant in the experimental work, Mr. W. T. Macoun, deserves special commendation. To their constant vigilance and careful records I am again indebted for most of the particulars relating to the experimental work at the Central Farm. I desire also to again bear testimony to the useful service rendered by Mr. Wm. Ellis, who has had charge of the seed-testing house, also the care and propagation of the economic and other plants which are under cultivation, all of which has been managed with skill and has had much careful attention.

WM. SAUNDERS,
Director Experimental Farms.

REPORT OF THE AGRICULTURIST.

(JAS. W. ROBERTSON.)

TO WM. SAUNDERS, Esq.,
Director Dominion Experimental Farms,
Ottawa.

SIR,—I have the honour to report upon the progress of the work which has been under my charge at the Central Experimental Farm during 1891. The duties of my office, as Dairy Commissioner for the Dominion, engrossed the major share of my attention, and occupied the most of my time during the year. Attendance at conventions of farmers and dairymen—many of them of provincial nature and scope—in the several provinces of Canada, took me from home very frequently.

Upon the recommendation of the Honourable the Minister of Agriculture, the Government approved of the establishment of Experimental Dairy Stations, (1) for the purpose of investigating, by carefully conducted and repeated experiments, the methods and treatments in the manufacture of cheese during the summer, which yield the finest quality and the greatest quantity of cheese from the milk which is furnished by the patrons of factories, and (2) for the purpose of carrying on the manufacture of creamery butter at the same stations, during the other months of the year, in order to encourage farmers to obtain an income from their cows during every month, by supplying cream or milk to a creamery and by the raising of calves and pigs during the winter season. Parliament made provision for that undertaking in the appropriation for the work of the Dairy Commissioner. From March, 1891, preparatory arrangements in the different provinces were made. Supervision was given to the work of itinerant instructors in the provinces, where the dairy industry was not developed sufficiently to call for the establishment of Experimental Dairy Stations in 1891; and the management of two Experimental Dairy Stations in Ontario, and some experimental work in Quebec, were undertaken.

These tasks and duties, together with lectures at conventions of dairymen and farmers' institutes, required my absence from Ottawa for some part of every month, and for the greater part of all the months, except February and November. In all, 49 conventions or meetings, of from two to five sessions each, were attended during the year. They were distributed: Ontario, 19; Quebec, 8; New Brunswick, 2; Nova Scotia, 4; Prince Edward Island, 3; Manitoba, 3; North-West Territories, 1; British Columbia, 9. My assistants in the Dairy Commissioner's branch of the work attended and gave addresses at 242 meetings. The report of the Dairy Commissioner for 1891 (which can be obtained upon application by farmers and all others who are interested in agriculture), will present a brief yet fairly complete statement of progress.

The remainder of my time was available for the Central Experimental Farm, and was given to planning for and superintending experiments in (1) the feeding of steers for beef; (2) the economical feeding of milking cows; (3) the fattening of swine; (4) investigations in the experimental dairy; (5) the management of 40 acres of land, to determine how many cattle could be kept economically on that area; and (6) the growth of fodder corn and the making and feeding of ensilage.

Permit me to refer farmers, and others who may be seeking information on the other branches of the agricultural work—grain-growing, root-growing and general farm management—to your own report.

For the sake of clearness, and the convenience of those who may be seeking information and guidance from its pages, the matter to be presented has been grouped under the following heads:—

I. CATTLE.—New purchases; general management; report on the feeding of steers; experimental tests in progress on the feeding and fattening of steers; investigations in the economical feeding of milking cows; short test to compare mangels with sugar-beets; and directions for the feeding of calves.

II. SWINE.—New purchases; reports on the fattening of swine on steamed *vs.* cold, raw feed; on the feeding of pease ensilage to pigs; on the quantities of grain consumed per pound of gain in weight, at different stages of the feeding periods; and feeding tests in progress with skim-milk and frozen wheat.

III. EXPERIMENTAL DAIRY.—Equipment of the building; tests in the separation of cream by different methods and treatments; experiments in the churning of cream at different stages of ripeness; experiments in the setting of milk and the making of butter from cows at different stages of lactation; the sterilizing of cream; and disposal of the dairy products.

IV. FORTY-ACRE LOT.—Areas of different crops; yields of mixed crops and corn

V. FODDER CORN AND THE SILOS.—Varieties of corn; yields from different methods of planting; ensilage from corn; ensilage from mixed crops of cereals; ensilage from pease, rye and clover; the construction and filling of silos.

I have received indispensable assistance in carrying on the work and investigations, which are reported upon herein, from those who have attended to the details from day to day. Much of the thoroughness and reliability of experimental work, such as has been undertaken here, depends upon the faithfulness, watchfulness and care of those servants of the public whose names are seldom brought to its notice, to receive the due recognition and appreciation which the value of their services merits. For the work of so many hours per day, every man has received fair wages; but for that special quality of service and concern for the success of the work, which money cannot buy, I take this opportunity of making mention of Mr. John Fixter, Farm foreman; Mr. R. R. Elliott, Herdsman; and Mr. Chr. Marker, Butter-maker.

I have the honour to be, Sir,

Your obedient servant,

JAS. W. ROBERTSON,
Agriculturist.

PART I.—CATTLE.

To the herd of cattle, only a few thoroughbred animals were added by purchase during the year. They were almost immediately thereafter shipped to the branch experimental farm at Brandon, Man.

Shorthorn.

From Mr. W. S. Hawkshaw, Glanworth, Ont.:

One bull calf, General H.=14574=; red; calved 15th December, 1890; bred by W. S. Hawkshaw, Glanworth, Ont.; got by Aberdeen Hero (Imp.)= =;—dam, Countess of Hawkhurst=8752=; by 3rd Duke of Rutland=559=; Countess 2nd =784=; by Lord Ramsden=794=.

Holsteins.

From Messrs. A. C. Hallman & Co., New Dundee, Ont.:

One cow, Queen of Waterloo, No. 14666, H.F.H.B., No. 153, H.F.H.B.C.; calved 12th April, 1888; bred by A. C. Hallman & Co., New Dundee, Ont.; sire, African Prince, No. 1270, H.F.H.B.; dam, Mina Rooker 2nd, No. 3742, H.F.H.B.

One cow, Princess Leda 2nd, No. 18510, H.F.H.B., No. 141, H.F.H.B.C.; calved 6th January, 1889; bred by A. C. Hallman & Co., New Dundee, Ont.; sire, Netherland Monk, No. 4424, H.H.B.; dam, Princess Leda, No. 7130, H.F.H.B.

Ayrshires.

From Messrs. Kains Bros., Byron, Ont.

One bull, Middlesex—1216—; red and white; calved 10th September, 1890; bred by Kains Bros., Byron, Ont.; sire, Prince of Byron—583—; dam, Jeanie of Auchebrair, (Imp.)—129—; by Duke 3rd—647—; Paisley, by Wallace of Drumlanrig—61—. From Messrs. David Morton & Sons, Hamilton, Ont.

One heifer, Dandy 2nd (imported in dam)—2004—; brown and white; calved 6th April, 1889; bred by Hugh Jack (Little Shewalton), Irvine, Scotland, imported by David Morton & Sons, Hamilton, Ont.; sire, Dandy Jim (1579); dam, Dandy 1st (5502), by Red Prince (1000).

One heifer, Jewel—2003—; white and brown; calved 14th June, 1889; bred by Hugh Jack (Little Shewalton), Irvine, Scotland; imported by David Morton & Sons, Hamilton, Ont.; Sire, Dandy Jim (1579); dam, Judy (Imp.) (5505); by Red Prince (1000).

Galloways.

We exchanged a bull calf which we had received in 1890 from Mr. Thomas McCrae, Guelph, Ont., for one bull, Chester (4472) 6760; calved March, 1887; bred by D. McCrae, Guelph, Ont.; sire, Stanley III of Drumlanrig (Imp.) (1793) 2833; dam, Chrissy (Imp.) (7099) 2587; by Chipperkyle (2332).

The four animals of the Galloway breed, which we had at the Central Experimental Farm, were sent to the Brandon farm, together with four Shorthorns and one young Holstein bull.

Grade Steers.

In October, 1891, sixteen grade steers were purchased for the carrying on of investigations into the effects of different rations for the feeding and fattening of cattle.

GENERAL MANAGEMENT.

SUMMER.—The hours of the stablemen were from 6 a.m. to 6 p.m., and four hands were employed. The assistant from the experimental dairy fed the calves. The bulls, part of the cows and the calves, were kept in the stables and fed on green fodders. The area of pasture land has been small for the number of cattle which have been kept. The animals not in the stables were inspected, and fed allowances of green fodder every day during the greater part of the season. The same hands looked after the experimental piggery and fed from 20 to 40 pigs.

WINTER.—The hours of the stablemen are from 6 a.m. to 5 p.m., and six hands are employed. Experiments in feeding are in progress, with 25 cows, 21 steers and 36 swine. Nine different rations are fed daily to cows, steers, bulls and calves. The quantity of feed consumed daily, by each animal, or group of animals, is weighed and recorded. The stalls and gutters in the main stable are cleaned out twice daily; the box stalls are cleaned out every second day. The cattle are curried daily, with a few exceptions; and the udders of the milking cows are brushed carefully before each milking. All the breeding and other animals—which are not weighed oftener in some special test—are weighed once every month.

Abortions.

During 1890 the disease of epidemic abortion was reported as prevailing in the herd. The method of treatment, which was then adopted, was described:—

I. The stables were thoroughly fumigated by the burning of sulphur, saturated with alcohol, with the doors and windows closed for three hours. Of course, all the cattle were out.

II. A wash was made up of 1 part of bichloride of mercury to 4,000 parts of water, into which solution were put 8 ounces of common salt; once a day the bare skin around the vulva, the anus and the root of the tail of the cows in calf, and also of those which had aborted, were sponged with the solution.

III. After several weeks of that treatment, the following was adopted as being preferable: $2\frac{1}{2}$ drachms of bichloride of mercury were dissolved in $3\frac{1}{4}$ ounces of glycerine and $3\frac{1}{4}$ ounces of alcohol; after these had united, $4\frac{1}{4}$ gallons of rain water were added. (The mixture should be kept in a wooden vessel, out of the reach of irresponsible persons, and animals). The bare skin under the tail and around that part was moistened once a day with the solution.

IV. The cows, which formerly had been turned out into a large yard every day for water, were watered from troughs in front of their stalls.

V. When a pregnant cow showed any symptoms of approaching abortion—and these are, slight relaxation of the muscles surrounding the vulva, restlessness and a continuous slight elevation of the tail—she was at once put into a box stall, where she was free from disturbance or causes of excitement. One-ounce doses of tincture of opium were given in the feed—even three times a day for one or two days until a quiet and slightly sluggish condition prevailed. Drenching with medicine was avoided.

The result is—and it is mentioned with hesitation and fear, lest the dread abortions should occur again—that since the system of treatment has been adopted 13 cows have given safe delivery to calves at the natural time, and only one case of abortion has occurred, and that could be accounted for satisfactorily. That covers a period of three and a-half months. During the preceding ten months there were 13 births at the natural time, and 14 prematurely, at from four and a-half to eight months.

The preceding six paragraphs have been copied from my report of 1890. During 1891 the number of births at the natural time was 34. There were 3 cases of abortion; one of these was that of a cow which had a similar misfortune last season; another of the cases could be accounted for afterwards, in so far as it was discovered that the cow was affected with an incurable disease, which had a tendency to provoke uterine disorders; the third case was that of a grade heifer, and for it no satisfactory reason could be assigned. There were also two cases of still-born calves.

Lice on Cattle.

Government property has no greater immunity from the attacks of parasites than that of private individuals, and during the winter of 1890-91 some of the cattle became infested with lice. That fact is mentioned for the purpose of stating that a most effective, safe and simple treatment can be given by applying a kerosene emulsion. The method of preparation is described thus in Bulletin No. 11, prepared by Mr. Fletcher, Entomologist:—

Kerosene (coal oil).....	2 gallons
Rain water.....	1 do
Soap.....	$\frac{1}{2}$ pound

“Boil the soap in the water till all is dissolved; then, while boiling hot, turn it into the kerosene, and churn it constantly and forcibly with a syringe or force pump for five minutes, when it will be of a smooth, creamy nature. If the emulsion be perfect it will adhere to the surface of glass without oiliness. As it cools it thickens into a jelly-like mass. This gives the stock emulsion.”

For use on the cattle it was diluted with 18 times its measure of water. Besides killing the lice, it seemed to have a beneficial action on the hair and skin. One-quarter of the quantity mentioned above is sufficient for a large herd.

Dehorning.

On 3rd December the operation of dehorning was performed on 4 three-year old steers, and on one Jersey bull five years old.

Through questions which have been asked at conventions and farmers' institutes, and by letters which have been received, an opinion has been asked repeatedly during the past two years upon the subject of dehorning cattle. Farmers who have sufficient open-shed or closed-in-shed convenience for the fattening of steers if they could be allowed to run loose with safety, have made frequent applications for information. The practice has become common in many of the States of the Union.

The references which have been made to it in the columns of the agricultural press provoked further curiosity and interest on the part of Canadian farmers, to learn from some authoritative source in Canada what effect the operation would have. The mode of procedure was to put each steer into the sling which we use for lifting the bulls when the hoofs are to be trimmed. The neck was fastened securely between two upright pieces of scantling, one of which was movable at the top, after the style of the common old-fashioned stable stanchion. The head was then tied to one side. The hair around the base of each horn was clipped off, to permit the cutting to be effected in such a way as to remove a narrow ring of skin with the horn. Leavitt's dehorning machine was used on two horns. It is constructed in such a way as to clip the horn off at one snap. In the case of three-year-old steers, the horns were too hard and tough for one man to use the machine with sufficient quickness of motion. For the other horns, a common fine-toothed carpenter's saw was used.

The operation on each horn lasted from one quarter to one half of a minute. In the case of two of the steers, the saw cut through an artery, from which a small jet of blood spurted. The wounds on the heads of two of the steers, appeared to be acutely painful for nearly a week; the other two animals did not appear to suffer any inconvenience after the operation was ended. It was not expected that blood would flow so freely from the wounds as it did in the two cases mentioned, and no particular preparation had been made to staunch the flow at once. A cloth covered with coal-tar, is probably one of the most accessible and suitable applications which can be made on the ordinary farm. The steers have been fed in box stalls, running loose in pairs, and they seem to be most healthy and gentle since the wounds healed.

In the case of the Jersey bull, he had become so vicious that the attendants went into his box-stall only at the jeopardy of their lives. Instructions had been given several months previously that no one was to go into his box-stall until after he had been securely tied. For the dehorning operation, the bull was tied in a similar manner to the steers. His horns were sawn off as close to the skull as possible. Not a thimbleful of blood altogether was shed; and when he was turned loose in his box-stall he acted as mildly as a sheep.

A full report on the feeding of the dehorned steers will appear after the completion of the experiment, which is expected to last until after April, 1892.

THE FEEDING OF SIX STEERS.

Six steers were purchased for feeding purposes in November, 1890. They were a fairly even lot of two-year-olds, and apparently were grades of Shorthorns. On 1st December, 1890, the average weight was 1,135 lb. each. They were weighed every week, and all the feed which they consumed was weighed every day. They had free access to water in a trough in front of the stalls, and a supply of salt was provided at one side of each manger. The following Table shows the weight of each steer on 1st December, 1890, and every four weeks thereafter until 18th May, 1891.

	Dec. 1.	Dec. 29.	Jan. 26.	Feb. 23.	Mar. 23.	April 20.	May 18.	Total Gain
Steer No. 1	1,220	1,305	1,355	1,390	1,420	1,486	1,493	273
" No. 2	1,120	1,195	1,200	1,256	1,255	1,350	1,374	254
" No. 3	1,037	1,096	1,102	1,188	1,199	1,235	1,317	280
" No. 4	1,170	1,230	1,263	1,310	1,336	1,385	1,442	272
" No. 5	1,225	1,302	1,308	1,361	1,386	1,396	1,430	205
" No. 6	1,040	1,081	1,108	1,175	1,207	1,257	1,263	223

The rate of increase in weight was not nearly so rapid as it might have been if all the animals had been fed in a stable, where they could feed and lie undisturbed. In our stable there is such a succession of visitors that the animals are disturbed, I suppose, a dozen times daily. The disturbances and consequent unfavourable conditions were alike for all the animals, and did not interfere with the fairness of the comparison, although they did hinder the rapidity of the fattening.

The six steers were fed on the same ration until 29th December. They were divided into three lots of nearly equal age and weight, and evidently of similar breeding. The main object of the test was to discover the value of corn ensilage as compared with common hay. One lot of steers were fed on a ration composed of hay, roots and meal; another lot of steers were fed on a ration of corn ensilage, with the same kind and quantity of meal; and the third lot of steers were fed on a ration consisting of corn ensilage, hay and roots, and an equal quantity of meal of the same quality as the other two rations contained.

The compositions of the rations were as follows:—

FIRST LOT OF STEERS, Nos. 1 and 2:

Hay	Lb. 20
Turnips.....	40
{ Straw	5
{ Chopped barley.....	2
{ do pease.....	2
{ Ground oil-cake	1
{ Cotton-seed meal.....	1
	<hr/> 71

For a period of five weeks, from 17th March to 20th April, one pound each of oil-cake and cotton-seed meal were added to the ration.

For the whole period of 20 weeks, from 29th December to 18th May, each steer consumed an average of 55.5 lb. per day.

SECOND LOT OF STEERS, Nos. 3 and 4:

Corn ensilage.....	Lb. 50
{ Straw.....	5
{ Chopped barley.....	2
{ do pease.....	2
{ Ground oil-cake	1
{ Cotton-seed meal	1
	<hr/> 61

For a period of five weeks, from 17th March to 20th April, one pound each of oil-cake and cotton-seed meal were added to the ration.

For the whole period of 20 weeks, from 29th December to 18th May, each steer consumed an average of 60 lb. per day.

THIRD LOT OF STEERS, Nos. 5 and 6:

Corn ensilage.....	Lb. 20
Turnips.....	20
Hay.....	10
{ Straw	5
{ Chopped barley.....	2
{ do pease	2
{ Ground oil-cake.....	1
{ Cotton-seed meal.....	1
	<hr/> 61

For a period of five weeks, from 17th March to 20th April, one pound each of oil-cake and cotton-seed meal were added to the ration.

For the whole period of 20 weeks, from 29th December to 18th May, each steer consumed an average of 52·8 lb. per day.

For the purpose of making a comparison between the actual cost of feeding steers on the three different rations, a market value was estimated for the component fodders in each. The hay was valued at \$8 per ton; roots (turnips or mangels) at \$4 per ton; straw at \$4 per ton; pease and barley at \$20 per ton; and cotton-seed meal and oil-cake at \$30 per ton. The corn ensilage cost \$1.40 per ton, as per statement in Bulletin No. 12, issued by Prof. Saunders in June, 1891. It will be observed that the corn ensilage was placed at cost, and the other fodders at an estimated market price; but it will not be considered by farmers, in many districts in Canada, that they can produce hay at a cost below \$8 per ton, or roots below \$4 per ton.

The following Table shows (1) the increase in weight of the steers in 20 weeks; (2) the quantity of feed consumed per day, and (3) the cost per head per day for feed:—

TABLE II.

—		Ration.	Increase in Weight.	Average feed con- sumed per day.	Average cost of feed per day.
			Lb.	Lb.	Cents.
First lot..	{ No. 1.....	Hay, roots and meal	188	55·5	19·23
	{ No. 2.....	do do	179		
Second lot	{ No. 3.....	Corn ensilage and meal.....	221	60·	11·90
	{ No. 4.....	do do	212		
Third lot	{ No. 5.....	Hay, roots, corn ensilage and meal.	128	52·8	15·58
	{ No. 6.....	do do do ..	182		

All the steers were allowed as much feed as they could eat up clean; and the quantity was varied from time to time, as they would eat more or less.

It may be mentioned, in explanation of the small increase in weight of steer No. 5, that he did not thrive well, part of the time. That could not be accounted for satisfactorily. He seemed to be healthy, but, as everyone who has fed cattle knows, an animal "will go off his feed" occasionally and will not thrive.

It will be observed that the steers fed on the corn ensilage and meal ration gained an average of 33 lb. each more than those on the ration of hay, roots and meal, during the 20 weeks.

During the last month of the testing period steers No. 3 and 4, on corn ensilage and meal, gained in weight much faster than the others; and when the experiment was finished they were in more attractive condition for handling and selling.

Table III shows the quantities of the digestible constituents in the feed, consumed by the several lot of steers, as calculated from the following table, which is reproduced from the report of 1890 :—

QUANTITIES of Digestible Protein, Carbo-hydrates and Fat, in each pound of certain Feeds, from tests with ruminants—(Oxen and Cows.)

	Total Dry Organic Matter.	Digestible Protein.	Digestible Carbo- hydrates.	Digestible Fat.
	Lb.	Lb.	Lb.	Lb.
Wheat 1 lb.	·89	·095	·588	·014
Barley do	·89	·094	·600	·026
Oats do	·87	·080	·440	·044
Pease do	·87	·201	·534	·029
Oil-cake do	·92	·283	·368	·050
Cotton-seed meal do	·92	·336	·264	·070
Wheat bran do	·87	·117	·453	·027
Mixed straw (wheat, barley, oat) do	·85	·035	·330	·004
Mixed hay do	·86	·051	·430	·012
Corn ensilage do	·25	·016	·230	·006
Corn stover do	·48	·033	·480	·008
Turnips do	·085	·010	·075	·001
Mangels do	·120	·011	·100	·001
Carrots do	·141	·013	·115	·002
Sugar beets do	·185	·010	·167	·001

TABLE III, showing the average quantities consumed, per day, by the two Steers in each lot.

	Rations.	Total Dry Organic Matter.	Digestible Protein.	Digestible Carbo- hydrates.	Digestible Fat.
		Lb.	Lb.	Lb.	Lb.
First lot, steer No. 1. . .	Hay, roots and meal . . .	47·64	4·60	25·34	·87
do No. 2. . .					
Second lot, steer No. 3. .	Corn ensilage and meal . . .	44·04	4·55	31·65	1·13
do No. 4. . .					
Third lot, steer No. 5. .	Hay, roots, corn ensilage and meal	43·62	4·41	25·98	·93
do No. 6. . .					

EXPERIMENTS IN PROGRESS.

At the present time, experiments are in progress with twenty steers :
THREE-YEAR-OLDS.—Two steers which were dehorned are being fed in a loose box (where the temperature is almost as low as in a shed with single board sides) on a ration of—

Corn ensilage	Lb. 50
Straw.....	5
	<hr/> 55

Two steers of the same age and similar quality, also dehorned, are being fed in a like manner, on a ration of—

Corn ensilage ...	Lb. 50
Straw.....	5
Oil-cake	2
Ground pease.....	2
do barley.....	2
	<hr/> 61

TWO-YEAR-OLDS.—Two steers are being fed upon each of the following rations :

No. 1.	Lb.	No. 2.	Lb.	No. 3.	Lb.	No. 4.	Lb.
Corn ensilage. . .	20			Corn ensilage....	50	Corn ensilage..	50
Hay.....	10	Hay.....	20				
Roots	20	Roots.....	40				
Straw.....	5	Straw.....	5	Straw.....	5	Straw.....	5
Oil-cake	2	Oil-cake.....	2	Oil-cake.....	2	Frozen wheat..	6
Ground pease... ..	2	Ground pease..	2	Ground pease..	2		
do barley..	2	do barley..	2	do barley..	2		
	<hr/> 61		<hr/> 71		<hr/> 61		<hr/> 61

YEARLINGS.—Two yearling steers are being fed in a loose box, similar to those used for the three-year olds, on ration No. 3 ; and two other steers of equal age are being fed on the same ration in the ordinary stable.

CALVES.—Two steer calves—one Shorthorn grade and one Quebec Jersey grade —are being fed on ration No. 2 ; and two steers of an equal age, and similar breeding, are being fed on ration No. 3.

These experiments will furnish data, also, upon the number of pounds gained in weight, and the quantity of feed consumed per pound of increase in live weight, by *three-year-old, two-year-old, yearling* and *calf* steers, respectively, when fed upon the same ration.

THE FEEDING OF MILKING COWS.

The object of this test was to discover the effect of substituting corn ensilage for hay and roots, and also the effect of substituting hay and roots for corn ensilage in the ration of milking cows. A study was also made of the economic effect of feeding different quantities of ground grain and meal in the rations. Eighteen milking cows were selected. For one week they were all fed upon a ration composed of—

	Lb.
Corn ensilage.....	25
Roots (carrots, mangels).....	20
Straw (oat and barley).....	10
Bran	3
Meal (pease, barley, oats).....	2
Cotton-seed meal.....	2
	<hr/> 62

Each animal was allowed as much of the mixture as it would eat every day. Twelve of the cows (afterwards Lots 1, 2, 3 and 4) were fed twice a day; and six of the cows (afterwards Lots 5 and 6) were fed three times daily. The eighteen cows were divided into three groups of six cows each. The six cows of each group were again divided into two lots of three cows each. The cows in each lot were arranged in such a way that the cows in the one lot of each group, were of nearly equal weights, milking capacity and period of lactation, with the cows of the other lot in the same group. For the first four weeks of the experiment eight tests of the morning and eight tests of the evening milk of each cow, were made with the Babcock milk tester, to determine the percentage of fat. Only four tests of the morning milk and four tests of the evening milk of each cow, were made during the second feeding period, after which the testing apparatus was unexpectedly required for the work of the travelling dairy instructors. The tests, which had been made, twice of morning milk and twice of evening milk, of each cow, every week, had shown such wide variations and unaccountable fluctuations in the quality of the milk of the same cows that it was decided that the data on the percentage of fat in the milk could not be considered reliable unless the milk were tested every day.

A series of experiments to discover the effect of the quality of the feed upon the percentage of the solid constituents in the milk of 25 cows has been undertaken since, and will be reported upon when it is concluded. At the time of writing, enough information has been secured to warrant the statement that a progressive increase in the richness of the ration, by the addition of one pound of meal per cow per day, every fortnight, does not appear to have any appreciable effect towards increasing the percentage of solids in the milk, within three months.

THE COWS OF GROUP I., Lot 1 (Daisy, Pinkie, Blossom) were grade Shorthorns, and at the commencement of the test—23rd March, 1891—had been milking for an average period of 46 days. The average weight of the cows was 1,195 lb. each.

First Period.

From 23rd March to 19th April the three cows of Group 1, Lot 1, were fed on ration 1, which was composed as follows:—

	Lb.
Corn ensilage.....	60
Wheat bran.....	2
Chopped pease.....	2
Oil cake.....	2
Cotton-seed meal.....	2
	<hr/> 68

Of that mixture each cow consumed an average of 92·7 lb. per day. The 92·7 lb. of the mixture contained 10·9 lb. of the mixture of bran, chopped pease, oil-cake and cotton-seed meal. The cost per day was calculated on the same basis of valuation as was used in the tests in the feeding of steers, viz.:—hay at \$8 per ton; roots at \$4 per ton; wheat, bran, pease and barley at \$20 per ton; and cotton-seed meal and oil-cake at \$30 per ton. Corn ensilage cost \$1·40 per ton, as per statement in Bulletin No. 12, issued by Prof. Saunders in June, 1891. Upon that scale of values, the cost per day was 19·37 cents per cow for feed.

The average quantity of milk, which had been yielded by the three cows during the weeks which preceded this test—1st March to 22nd March—was 28·3 lb. each per day. From 23rd March to 19th April the average quantity of milk was 28·94 lb. per cow per day.

The average quality of the milk, as determined by eight tests of morning milk and eight tests of evening milk of each cow, showed 3·52 per cent of fat.

The animals weighed an average of 1,195 lb. each at the commencement, and an average of 1,207 lb. each at the end of the four weeks.

Second Period.

After the feeding of the ration 1, for four weeks, the quantity of corn ensilage was increased to 90 lb., with the same quantity of meal as before. The ration as then arranged was:—

	Lb.
Corn ensilage.....	90
Wheat bran	2
Chopped pease.....	2
Oil-cake.....	2
Cotton-seed meal.....	2
	<hr/>
	98
	<hr/>

Of that mixture each cow consumed an average of 95 lb. per day, which contained 7·7 lb. of the meal mixture—bran, chopped pease, oil-cake and cotton-seed meal.

The cost per day was 15·77 cents per cow, or 3·6 cents per cow less than in the former case.

The average quantity of milk was 26 lb. per cow per day.

The animals weighed an average of 1,200 lb. each at the end of the four weeks.

Third Period.

During the third period of four weeks the ration was:—

	Lb.
Corn ensilage.....	40
Hay	20
Bran	2
Chopped pease.....	2
Oil-cake.....	2
Cotton-seed meal.....	2
	<hr/>
	68
	<hr/>

Of that mixture each cow consumed an average of 53·6 lb. per day, which contained 6·3 lb. of the meal mixture—bran, chopped pease, oil-cake and cotton-seed meal.

The cost per day was 16·4 cents per cow.

The average quantity of milk was 21·7 lb. per cow per day.

The animals weighed an average of 1,234 lb. each at the end of the four weeks

The extended explanations which have been given in presenting the facts of feeding the cows of Lot 1, for the three periods of four weeks each, apply to the other lots of cows.

The following Tables present the facts for convenient comparisons:—

TABLE I.—Group I, Lot 1, (Daisy, Pinkie, Blossom).—Three grade Shorthorn cows.

At 23rd March, when the first period of the test began, the average length of time from the commencement of their milking period was 46 days.

Composition of Ration.	Preparatory Period of one week.	First Period of four weeks.	Second Period of four weeks.	Third Period of four weeks.
Corn ensilage. Lb.		60	90	40
Hay. “				20
Root (mangels or carrots). “				
Meal (equal parts by weight of wheat bran, ground pease, oil-cake and cotton-seed meal).. “		8	8	8
		68	98	68
(For composition of ration for preparatory period, see page 72).				
Quantity consumed per cow, per day. Lb.	57	92.7	95	53.6
do of meal, per cow, per day. “		10.9	7.7	6.3
Value of feed consumed, per cow, per day. . . . Cents.		19.37	15.77	16.40
Average quantity of milk, per cow, per day. Lb.	28.3	28.94	26.06	21.74
do percentage of fat in milk. p.c.		3.52		
do live weight per cow at beginning Lb.	1,175	1,195	1,207	1,200
do do do end. “	1,195	1,207	1,200	1,234
Value of feed consumed per 100 lb. of milk pro- duced. Cents.		66.93	60.51	75.43

TABLE II.—Group I, Lot 2 (Blue-Bell, Buttercup, Pansy).—Three grade Shorthorn cows. At 23rd March, when the first period of the test began, the average length of time from the commencement of their milking period was 45 days.

Composition of Ration.	Preparatory Period of one week.	First Period of four weeks.	Second Period of four weeks.	Third Period of four weeks.
Corn ensilage..... Lb.		30	40	90
Hay..... “		15	20	.....
Roots (mangels or carrots)..... “				
Meal (equal parts by weight of wheat, bran, ground pease, oil-cake and cotton-seed meal.) “		8	8	8
		53	68	98
(For composition of ration for preparatory period, see page 72.)				
Quantity consumed per cow, per day..... “	57	68	53	90
do meal per cow, per day..... “		10·2	6·2	7·3
Value of feed consumed per cow, per day..... Cents.		23·19	16·22	14·94
Average quantity of milk per cow, per day..... “	26·8	28·47	27·1	23·87
do percentage of fat in milk..... p.c.		3·50		
do live weight per cow at beginning..... Lb.	1,211½	1,214	1,247	1,250
do do end..... “	1,214	1,247	1,250	1,249
Value of feed consumed per 100 lb. of milk pro- duced..... Cents.		81·45	59·85	62·58

TABLE III.—Group II, Lot 3 (Barberry, Clenna Rex, Countess).—Two Jersey and one Ayrshire cows. At 23rd March, when the first period of the test began, the average length of time from the commencement of their milking period was 151 days.

Composition of Ration.	Preparatory Period of one week.	First Period of four weeks.	Second Period of four weeks.	Third Period of four weeks.
Corn ensilage..... Lb.	60	90	90	
Hay..... “				
Roots (mangels or carrots)..... “				
Meal (equal parts by weight of wheat bran, ground pease, oil-cake and cotton-seed meal).. “			4	8
	60	94	98	
(For composition of ration for preparatory period, see page 72.)				
Quantity consumed per cow, per day..... “	44	60	66·3	65
do of meal per cow, per day..... “			2·9	5·3
Value of feed consumed per cow, per day..... Cents.		4·2	7·95	10·79
Average quantity of milk per cow, per day..... Lb.	13·9	10·75	11·32	12·58
do percentage of fat in milk..... p.c.		4·65		
do live weight per cow at beginning..... Lb.	856	854	827	812
do do end..... “	854	827	812	856
Value of feed consumed for 100 lb. of milk pro- duced..... Cents.		39·06	70·22	85·77

TABLE IV.—Group II, Lot 4 (Maggie B., Clenna Rex II).—One Ayrshire and one Jersey cow. (The other Jersey cow was taken sick and was dropped out.) At 23rd March, when the first period of the test began, the average length of time from the commencement of their milking period was 172 days.

Composition of Ration.	Preparatory Period of one week.	First Period of four weeks.	Second Period of four weeks.	Third Period of four weeks.
Corn ensilage. Lb.	.....	60	90	90
Hay. .... “	.....	.....	.....	.....
Roots (mangels or carrots)... “	.....	.....	.....	.....
Meal (equal parts by weight of wheat bran, ground pease, oil-cake and cotton-seed meal).. “	.....	8	8	4
	.....	68	98	94
(For composition of ration for preparatory period, see page 72.)				
Quantity consumed per cow, per day..... “	47	74·5	70·8	66·7
do of meal per cow, per day..... “	.....	8·7	5·7	2·8
Value of feed consumed per cow, per day.....Cents.	.....	15·57	11·75	8
Average quantity of milk per cow, per day..... Lb.	17·6	18·18	18·49	14·12
do percentage of fat in milk..... p.c.	.....	4·58	.....	.....
do live weight per cow at beginning..... Lb.	846	833	869	881
do do at end “	833	869	881	898
Value of feed consumed per 100 lb. of milk produced .....Cents.	.....	85·64	63·54	56·62

TABLE V.—Group III, Lot 5 (Dorinda II, Dorinda III, Aaggie's Cornelia). Three Holstein cows. At 23rd March, when the first period of the test began, the average length of time from the commencement of their milking period, was 150 days.

Composition of Ration.	Preparatory Period of one week.	First Period of four weeks.	Second Period of four weeks.	Third Period of four weeks.
Corn ensilage Lb.		40	100	
Hay “				40
Roots (mangels or carrots) “		30	30	30
Meal (equal parts by weight of wheat bran, ground pease, barley, oil-cake and cotton-seed meal) “		10	10	10
		80	140	80
(For composition of ration for preparatory period, see page 72.)				
Quantity consumed per cow, per day Lb.	54	134·6	122·3	48·3
Quantity of meal per cow, per day “		16·8	8·7	6·0
Value of feed consumed per cow, per day Cents.		34·99	21·89	20·53
Average quantity of milk per cow, per day Lb.	28·6	31·76	29·30	25·12
do percentage of fat in milk p.c.		3·56		
do live weight per cow at beginning Lb.	1,175	1,094	1,255	1,220
do do at end “	1,094	1,255	1,220	1,204
Value of feed consumed per 100 lb. of milk produced Cents.		110·17	74·70	81·72

TABLE VI.—Group III., Lot 6 (Miss Elgins, Fashion Book, Cherry Constance). Three Shorthorn cows. At 23rd March, when the first period of the test began, the average length of time from the commencement of their milking period was 121 days.

Composition of Ration.	Preparatory Period of one week.	First Period of four weeks.	Second Period of four weeks.	Third Period of four weeks.
Corn ensilage Lb.				100
Hay “		20	40	
Roots (mangels or carrots) “		30	30	30
Meal (equal parts by weight of wheat bran, ground pease, barley, oil-cake and cotton-seed meal). “		10	10	16
		60	80	140
(For composition of ration for preparatory period, see page 72.)				
Quantity consumed per cow, per day. “	57	67·2	46·6	101
Quantity of meal per cow, per day “		11·2	5·8	7·2
Value of feed consumed per cow, per day Cents.		29·1	19·8	18
Average quantity of milk per cow, per day. . . . Lb.	23·5	25·63	20·76	18·14
do percentage of fat in milk p.c.		3·75		
do live weight per cow at beginning. Lb.	1,300	1,295	1,342	1,342
do do at end. “	1,295	1,342	1,342	1,290
Value of feed consumed per 100 lb. of milk produced. Cents.		113·53	95·37	99·22

The teaching of the experiment points to the economy of:—

- (1) Providing for milking cows a ration of succulent quality ;
- (2) Feeding as large a quantity of the feed as the animals will eat up clean ; and
- (3) Making the ration of such a gross and bulky composition that not more than from 6 to 8 pounds of meal—the concentrated and expensive part of the feed—will be consumed by the ordinary cow per day.

Corn ensilage of such quality as came from our silos was not in itself a complete or suitable feed for milking cows. During the period when it was fed alone the hair of the cows seemed dry, there was an absence of thrifty appearance, and the yield of milk fell off in the first period of four weeks by 22·6 per cent. There was an average gain in the yield of milk during the first period of four weeks, from the cows in each of the other five lots, of 6·5 per cent.

Feeding Mangels vs. Sugar-beets for a Short Period.

An experiment to last for three weeks was undertaken on 7th December, to discover if any immediate and perceptible influence on the quantity and quality of the milk resulted from feeding sugar-beets in a ration, in place of mangels.

Twenty-three milking cows were in three groups, according to their periods of lactation, for the experimental dairy tests reported upon in Tables V to X of the dairy experiments recorded in Part III of this report.

The ration fed from 7th to 13th December was composed of:—

Corn ensilage.....	Lb. 40
Mangels.....	35
Straw.....	5
Meal (barley, pease, oats).....	5
	<hr/> 85 <hr/>

The ration fed from 14th to 27th December was composed of:—

Corn ensilage ..	Lb. 40
Sugar beets.....	35
Straw ...	5
Meal (barley, pease, oats).....	5
	<hr/> 85 <hr/>

The milk was carefully weighed, the specific gravity was taken by the lacto-densimeter, and the percentage of fat was ascertained by the Babcock milk tester. The following Table shows the average results:—

TABLE VII.

	From Mangels.		From Sugar Beets.	
	Morning Milk.	Evening Milk.	Morning Milk.	Evening Milk.
Average quantity of milk Lb.	8.29	6.48	7.72	5.42
do specific gravity.....	1,033.08	1,032.91	1,033.27	1,033.54
do per cent of fat in milk p.c.	4.13	4.76	4.16	4.75

This experiment does not indicate that there was any appreciable difference in the quantity or richness of the milk, due to the substitution of sugar-beets for mangels. An examination of the butter which was made revealed the fact that the butter made during the period when sugar-beets were fed had a firmer body and a finer flavour than that which was made during the period when mangels were being fed.

Feeding Calves.

Very many enquiries have come to the office by mail, asking for information and advice on the feeding and raising of calves for the dairy. At my suggestion one of my assistants in the Dairy Commissioner's branch, Mr. J. W. Hart, prepared the following short article on that subject. Mr. Hart has proven by his work that he has special aptitude and ability in the care of dairy stock; and I consider the matters of advice contained in his article to be so much to the point, and capable of so much service to the stock-raisers of Canada, that I introduce it here in his own bright language.

(Written by J. W. Hart).

A knowledge of the principles which underlie the science of feeding will materially aid any one who essays to raise dairy stock; and no class of stock upon the farm will more fully respond to judicious, intelligent and generous treatment than will the calves. No saving can be effected by stinting calves in their feed. The man who starves his young stock through greed of gain, and in accordance with his false notions of economy, is not a capable stock-raiser or feeder. Aside from a humanitarian standpoint, what shall it profit a man if he feed a calf twelve months to attain a weight that could have been laid on in one-half the time? A stunted, dejected-looking calf, and the loss of the food necessary to maintain its miserable existence for six months is the ordinary result. Nor is this all. If the calf be raised for the dairy it will seldom outlive the effects of its early treatment. The difference between what such a cow is, and what she might have been—extending over a period of years, and to her offspring—will keep hundreds of dollars out of the stock-raiser's pocket.

The feeding of a calf commences before the calf is dropped. Before calving, the cow should be fed liberally with suitable food, that the calf may be strong and vigorous, and the flow of milk large.

"Milk is the natural food of the young of all mammalia." But, except in a few instances (and they are rarer than many of our breeders of thoroughbred stock suppose), milk—the model and perfect food—is too expensive a diet for the calves. Therefore, some owners of cows knock the calves on the head; but others prefer to raise them. The object of this article is to show how this may be accomplished with profit. I would not advise any one to raise all the calves dropped in his herd. It matters not how excellent the herd may be, there will be some weakly calves, and calves from the poorest milkers, that cannot be raised with profit or advantage.

Milk being a perfect food, supplying all the elements necessary for the growth of bone, muscle, nerve and sinew, for repairing waste and maintaining the animal heat, "it must follow as the night the day," that the more closely we can get our substitutes to resemble milk, in character and composition, the more rational and correspondingly successful will our practice be. The following is an average of a number of analyses of milk:—

Water.....	87·25	per cent.
Fat.....	3·50	do
Albuminoids.....	3·90	do
Sugar.....	4·60	do
Ash.....	·75	do

In this article I shall not attempt a description of these constituents and their functions in the animal economy. If the fat be taken from the milk in the form of butter it should be replaced by a cheaper food, rich in fat. Flax-seed is such a food, and its mucilaginous character when cooked specially adapts it to the tender mucous coat of the alimentary tract of the young animal. If flax-seed be difficult to obtain, linseed-meal, oatmeal, pease-meal or cotton-seed meal may be used. If whey be used as the basis of a ration, it should be fed sweet. Owing to its watery character, more grain should be fed with it than with skim-milk. Whatever meal is fed in milk or whey should be cooked.

I think it best to let the calf get its fill two or three times from the dam in nature's own way. Then feed it twice a day on whole milk, warm from the cow, until it is a week old. A gallon at a feed will be as much as an ordinary calf can assimilate. To teach a calf to drink, back it into a corner, get astride of its neck, and set the pail containing the milk down in front of it; place the first two fingers of the right hand in its mouth, keeping the palm of the hand over its nose. As soon as the calf commences to suck, lower its nose into the pail of milk; the calf will continue to suck, drawing the milk through the canal formed by the fingers; gently remove the fingers, keeping the calf's nose—not its nostrils—below the surface. If it keeps on drinking, the victory is won; but if objecting to this—to it unnatural

treatment—it ducks its head to the bottom of the pail and jerks it up again, spouting the milk all over you, don't swear and maul the innocent little stranger with a milking stool. Two or three lessons will usually be successful in teaching the most obstinate calf to drink. It becomes more difficult to teach calves to drink as they get older, but it can be done by persistence, patience and gentleness. After the first week, one-half of the new milk may be replaced by sweet skim-milk, with the addition of half a teacupful of flax-seed jelly. Instead of flax-seed, oil-cake, oil-meal, oat-meal, middlings or pease-meal may be fed—the last named sparingly, as it is constipating in tendency. The flax-seed may be gradually increased to half a pound a day for a calf of three months. Keep some clean, bright hay and chopped grain where the calf can reach it, and it will soon learn to eat. Don't be afraid that it will eat too much of these things.

In feeding calves there is a danger that the milk will be swallowed too rapidly, and thus produce indigestion and scouring. For young calves a nipple is often used, which obviates that difficulty. Half a teaspoonful of rennet-extract in the milk will correct the tendency to scours, and will prove an excellent promoter of digestion. If scouring be noticed, don't dose the calf with powerful astringents, but decrease the ration of milk, and to it add a teacupful of boiled flour.

Where two or more calves are fed together, keep them tied up while feeding, and for a short time afterwards, so that they cannot suck each other.

Feed regularly twice or three times a day, and have the milk at blood heat. Never feed cold milk to a young calf. It is better that the same person should attend the calves regularly.

Calves should be allowed access to pure water and salt. Don't miss the effects of good feeding, by allowing them to suffer for these prime necessities.

After the calf is four months old, if milk be scarce, gradually lessen the quantity fed, until at the age of six or seven months it may be dispensed with entirely.

Exercise is beneficial, especially to calves intended for the dairy. The run of a grass plot should be given where convenient. The calf pen should be kept dry and clean.

Study the nature of the animal; respect its preferences; anticipate its wants; treat it kindly; be a watchful, intelligent feeder; and verily thou shalt not fail to raise good calves.

PART II.—SWINE.

Of thoroughbred swine there were purchased during the year:

Berkshire.

One boar, from Mr. Thomas Teasdale, Concord, Ont.

Tamworths.

One boar and one sow, from Messrs. J. L. Grant & Co., Ingersoll, Ont.

Poland Chinas.

Two sows (pure bred, but not now eligible for registration), from Messrs. W. M. & J. C. Smith, Fairfield Plains, Ont.

A number of grade pigs were purchased, with which to carry on experiments, of which some are still in progress.

Provision has been made for crossing some of the longer and leaner breeds, such as the Improved Large Yorkshires and Tamworths, on the shorter and more hardy breeds, such as the Essex, Berkshire, &c. The ultimate object will be to discover what cross or pure-bred swine will give the largest yield in weight, and the best quality of meat for every pound of feed consumed. A few feeding tests for a comparison of the cross-bred pigs are in progress at this writing.

EXPERIMENTS IN THE FATTENING OF SWINE.

In November, 1890, 24 grade pigs were purchased. Eight of them were white, and apparently grades of Chester whites; 16 of them were nearly all black, and were evidently grades of Berkshires. They were divided into six lots of four pigs in each.

THE EIGHT WHITE PIGS were put into pens Nos. 1 and 2, and the two lots of four each were, as nearly as possible, alike in weight and appearance. Both lots were fed on a mixture of grain, consisting of equal parts of ground pease, barley and rye. The object of this experiment was two-fold—(1) to discover the difference, if any, in the quantity of grain required to produce every pound of increase in the live weight of the swine, when *fed steamed and warmed* in the one case, and when *fed raw and cold* in the other case; (2) to obtain a record of the comparative quantities of grain required to produce every pound of increase in the live weight of the swine, during the different stages of the feeding period.

The mixture of grain was fed wet in both cases. Cold water was given to drink. A mixture of salt and wood ashes was kept in a box on the floor of each pen, where the pigs had access to it at will. The feed was weighed every day, and the swine once every week. In the following Table the feeding period has been arranged into five periods of four weeks each, and one period of three weeks. It shows the gain in weight and the quantities of grain consumed.

TABLE I.

	9th December.	5th January.	2nd February.	2nd March.	30th March.	27th April.	18th May.	Totals.
	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.
<i>Pen 1—Four Swine—</i>								
Fed on a mixture of ground pease, barley and rye, <i>fed steamed and warmed</i> :								
Live weight.....	302	407	614	808	917	974½	745*	.....*Three swine only.
Gain in weight.....		105	207	194	109	57½	30	702½ gain in weight.
Feed consumed.....		348	637	736	545	406	256	2,928 grain consumed.
Feed consumed per lb. gain in live weight.....								4·16 grain.
<i>Pen 2—Four Swine—</i>								
Fed on a mixture of ground pease, barley and rye, <i>fed raw and cold</i> :								
Live weight.....	308	413½	597	723	781½	830½	872	.....
Gain in weight.....		105½	183½	126	58½	49	41½	564 gain in weight.
Feed consumed.....		348	563	558	413½	278½	237	2,398 grain consumed.
Feed consumed per lb. gain in live weight.....								4·25 grain.
<i>Pens 1 and 2—</i>								
Average feed consumed per lb. of gain in live weight.....		3·31	3·07	4·04	5·73	6·45	6·93	
Percentage of increase in feed consumed per lb. of gain in live weight.....				31%	86%	110%	125%	

(1). RESULTS :—Taking in the whole period, extending from 9th December to 18th May, 4·16 pounds of the mixture of grain, ground pease, barley and rye, were consumed for every pound of increase in the live weight, when fed steamed and warm, against 4·25 pounds of the grain when fed raw and cold.

(2). The swine, on the steamed and warm feed, gained 702½ pounds in liveweight, against 564 pounds of gain by the swine on the raw and cold feed; but the former consumed 2,928 pounds of grain, as against 2,398 pounds of grain consumed by the latter. That indicates that when feed was provided, steamed and warm, the swine consumed larger quantities of it than when fed raw and cold; they also gained faster in weight, but every pound of increase in weight cost practically as much in grain in the one case as in the other. There was nothing to compensate for the labour and expense of the steaming.

(3). There was a marked and gradual increase in the quantity of grain consumed per pound of gain in live weight, after the second month of the feeding. That will be presented again in another Table.

EIGHT OF THE BLACK PIGS were put into Pens Nos. 3 and 4. The pigs in Pen 3 were as nearly as possible similar in weight and appearance to those in Pen 4.

In this experiment, the object was to discover the value, if any, of clover ensilage for the feeding and fattening of swine of an average weight of 64 pounds each.

Records were also kept, to ascertain the comparative quantities of feed required to produce every pound of increase in the live weight of the swine, during the different stages of the feeding period.

The pease ensilage was prepared by harvesting the crop when the earliest pods were filled and before the pease became hard. The vines were green and succulent. The ensilage was well preserved. The pigs in Pen 3 were fed an allowance of grain, a mixture of equal parts of ground pease, barley and rye, but not as much as they would have eaten readily. They were fed also a quantity of pease ensilage. The pigs in Pen 4 were fed upon pease ensilage only. In both cases the pigs refused to eat more than a small portion of whatever quantity of pease ensilage was offered to them. The remainder was nosed over, pushed about and tramped on. When what was left uneaten was weighed out of the pens it was very wet.

Both lots of pigs were allowed cold water to drink, and a mixture of salt and ashes was accessible to the pigs in both pens. The pease ensilage did not seem to have any feeding value to the pigs which received an allowance of grain; and the pigs in Pen 4 steadily decreased in weight for nine weeks, when the feeding of ensilage was ended.

The following Table contains the details of the weights of pigs, feed consumed, and rate of gain in live weight:—

TABLE II.

	29th December.	5th January.	2nd February.	2nd March.	30th March.	27th April.	18th May.	Totals.
<i>Pen 3—Four Swine—</i>								
Fed on a mixture of ground pease, barley and rye, <i>fed steamed and warmed</i> , and pease ensilage—	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.
Live weight	254	267	414	*379	442	494	548	*Three swine only.
Gain in weight.....		13	147	74	63	52	54	403 gain in weight.
Feed consumed { Grain		63	474	335	287	260	243	1,662 grain consumed.
Pease ensilage.....		112½	682	345				
Pease ensilage left uneaten (wet)....		100	625	319				
Grain consumed per lb. of gain in live weight.....								4·12 grain.
<i>Pen 4—Four Swine—</i>								
Fed on pease ensilage only until 2nd March—								
Live weight	256	237	223	205				
Loss in weight.....		19	14	18				51 loss in weight.
Pease ensilage fed.....		235	1401	2127				
do left uneaten (wet).		150	938	1409				
After 2nd March, fed on a mixture of ground pease, barley and rye, <i>fed raw and cold—</i>								
Live weight.....				205	395½	512½	571	
Gain in weight.....					190½	117	58½	366 gain in weight.
Feed consumed					443	388	327	1,158 grain consumed.
do per lb. of gain in live weight					2·32	3·31	5·59	3·16 grain.
<i>Pens 3 and 4—</i>								
Average feed consumed per lb. of gain in live weight.....		4·84	3·22	4·52	2·88	3·83	5·06	

THE OTHER EIGHT BLACK PIGS—Berkshire grades—were put into Pens Nos. 5 and 6, and the two lots were as nearly similar in appearance and weight as possible. The objects of this experiment were the same as those in the experiment with the swine in Pens 1 and 2. The method of conducting it was similar, with the difference of sugar beets being fed to the swine in both pens, with the grain mixture.

Table III shows the weights of the swine, the gains in weight, and the quantities of feed consumed.

TABLE III.

	9th December.	5th January.	2nd February.	2nd March.	30th March.	27th April.	18th May.	Totals.
	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.
<i>Pen 5—Four Swine—</i>								
Fed on a mixture of ground pease, barley and rye, <i>fed steamed and warmed</i> , and sugar beets—								
Live weight.....	187	258	425	581	669	744½	812	
Gain in weight.....		71	167	156	88	75½	67½	625 gain in weight.
Feed consumed { Grain.....	333	412	540	475	369	282		2,411 grain consumed.
{ Sugar beets.....	44½	330	313	320	308	224		1,538 sugar beets consumed.
Feed consumed per lb. of gain in live weight.....								{ 3·86 grain. 2·46 sugar beets.
<i>Pen 6—Four Swine—</i>								
Fed on a mixture of ground pease, barley and rye, <i>fed raw and cold</i> , and sugar beets—								
Live weight.....	201	272	415	547	692	731	772	
Gain in weight.....		71	143	132	145	39	41	571 gain in weight.
Feed consumed { Grain.....	225	396	503	458	371	270		2,223 grain consumed.
{ Sugar beets.....	60	320	307	310	322	244		1,563 sugar beets consumed.
Feed consumed per lb. of gain in live weight.....								{ 3·89 grain. 2·73 sugar beets.
<i>Pens 5 and 6—</i>								
Average feed consumed per lb. of gain in live weight.....								
{ Grain.....	3·93	2·61	3·62	4·00	6·50	4·33		
{ Sugar beets.....	0·72	2·10	2·15	2·73	5·52	5·11		
*Percentage of increase in feed consumed per lb. of gain in live weight.....				21 per ct.	90 per ct.			
*1 lb. grain equal to 5 lb. sugar beets.....								

The following Table shows the quantities of feed consumed per pound of gain in live weight, during each of the six feeding periods. The duration of each feeding period was four weeks, with the exception of the first period for Pens 4 and 5, and the last period for all the Pens, which was three weeks. The grain fed in each case was a mixture of equal parts of ground pease, barley and rye. No notice is taken in this Table of the pease ensilage fed to Pens 4 and 5, as it did not appear to have any appreciable feeding value in these cases.

TABLE IV.—Pounds of Feed consumed per pound of gain in the live weight of swine.

Feeding Periods.	Pen 1, 4 Swine; Grain, Fed Steamed and Warm.	Pen 2, 4 Swine; Grain, Fed Raw and Cold.	Pen 3, 4 Swine; Grain, Fed Steamed and Warm.	Pen 4, 4 Swine; Grain, Fed Raw and Cold.	Pen 5, 4 Swine; Grain, Fed Steamed and Warm, and Sugar Beets.		Pen 6, 4 Swine; Grain, Fed Raw and Cold, and Sugar Beets.	
	Grain, Lb.	Grain, Lb.	Grain, Lb.	Grain, Lb.	Grain, Lb.	Sugar Beets, Lb.	Grain, Lb.	Sugar Beets, Lb.
First	3·31	3·30	4·84	.....	4·69	0·61	3·17	0·84
Second.....	3·07	3·07	3·22	.....	2·46	2·00	2·76	2·23
Third	3·79	4·43	4·52	.....	3·46	2·00	3·81	2·32
Fourth.....	5·00	7·07	4·55	2·32	5·40	3·63	3·15	2·13
Fifth.....	7·06	5·68	5·00	3·31	4·88	4·08	9·51	8·25
Sixth	8·53	5·71	4·50	5·59	4·17	3·31	6·58	6·00
Average	4·16	4·25	4·12	3·16	3·86	2·46	3·89	2·73

CONCLUSIONS.—The teaching of these three sets of experiments is to the effect that :—

(1.) There is no appreciable difference in the number of pounds of grain required to produce every pound of increase in the live weight of swine, when fed steamed and warm, as against fed raw and cold;

(2.) On the average there is a gradual increase in the quantity of feed consumed, for every pound of gain in live weight of swine, after the second month of their feeding period and after the average live weight exceeds 100 lb. ;

(3.) It is economical to market swine for slaughtering when they weigh from 180 to 200 lb. alive;

(4.) The *largest* consumption of feed per day by swine is at or near the period of their feeding, when the number of pounds of feed consumed, per pound of increase in weight, is *lowest* ;

(5.) For the increase of weight by 3,231½ lb. in 24 swine, 4·14 lb. of a mixture of ground pease, barley and rye were required for every pound of increase in live weight.

Several series of feeding tests are in progress, mainly for the purpose of determining the relative values of (1) ground grain and whole grain; (2) of grain and skim-milk; and (3) of frozen wheat from Manitoba and North-West Territories. At this writing, the quantity of ground frozen wheat consumed per pound of increase in live weight has been 5·30 lb., with swine weighing from 185 lb. to 275 lb. live weight each, and 3·93 lb. of ground frozen wheat per pound of increase in live weight with swine weighing from 70 lb. to 105 lb. each.

PART III.—EXPERIMENTAL DAIRY WORK.

The experimental dairy building on the farm, which was described in the annual report for 1890, was completed early in 1891. A cut of it appears underneath.

The machinery and apparatus are adequate for the present needs of the farm, and enable us to carry on investigations which are considered to be capable of rendering the most immediate and practicable service to the dairymen of the country.

An 8 h. p. boiler and 6 h. p. steam engine were purchased from Mr. Geo. Low, of Ottawa, who also fitted up the steam pipes and shafting throughout the building.

A hand-power centrifugal cream separator, manufactured by Burmeister & Wain, of Copenhagen;

A No. 4 "Alexandra" centrifugal cream separator, and a No. 8 "Alexandra" centrifugal cream separator for operation by hand-power, manufactured by R. A. Lister & Co., Dursley, England;

One No. 5 Daisy revolving barrel churn of fourteen gallons' capacity, and two No. 2 Daisy churns of four gallons capacity each;

A Boyd cream ripening vat, and fermentation starter vat;

A lever butter worker for hand use;

Several Babcock milk-testers;

Two pairs of weighing scales; and the usual outfit of small dairy utensils, such as deep-setting milk pails, 20" x 8½" diam., shallow milk pans, strainer, skimmer, butter printer, thermometers, water pails, hot water and cold water tanks, washing sink, brushes, etc., furnish the dairy with conveniences for carrying on its work.

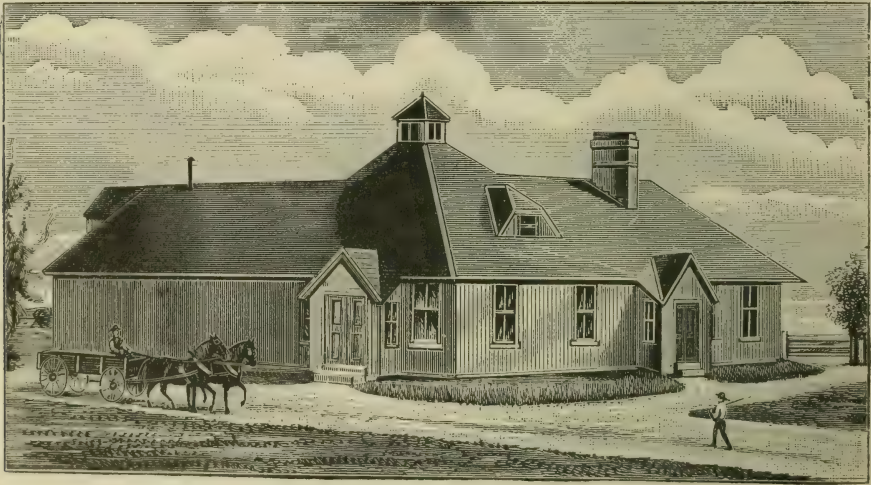


FIG. IV.—Dairy Building, Central Experimental Farm.

Besides these, there are several tables, and a milk-setting tank which merits particular description for the information of farmers. The tank is constructed of 2-inch pine lumber; its length is 7 ft. 6 in.; its width 2 feet, and its depth 2 feet. These are inside measurements. It is divided into four compartments, each 21 x 24 x 24 inches. That size gives sufficient space for the setting of four deep-setting milk pails in each. Cold water is led into each compartment by means of a pipe which runs down to within 1 inch from the bottom. The overflow of water—when it has been slightly warmed by contact with the milk-pails—is carried off by a pipe at its surface. Where the supply of cold water is limited, this method of leading the cold water to *near the bottom of the tank*, and conducting the water which has been warmed from the surface to the overflow pipe or drain, will enable the cooling power of the water to be used most economically. The overflow water may be in excellent condition for the watering of stock, where and when water for both purposes is scarce.

PARTICULARS OF EXPERIMENTS.

In the course of the experimental work of the year a great mass of valuable data has been accumulated in the records. As far as experiments have been completed, or even advanced sufficiently to furnish useful guidance for dairymen in their practice, they will be reported upon. The tests for comparison between the centrifugal cream separators and the setting methods are not ready to be reported on in full, as it is considered desirable to make a record of the results which are found during every month of the year before any definite conclusion is announced.

Instead of burdening the pages of the report with the details of single tests only, a statement of the average results of from 4 to 12 tests will be presented in most of the different experiments. Our herd of milking cows contains animals of seven different breeds, beside grade milch cows. When not otherwise specified, the milk used in the experiment was mixed herd milk.

Experiments in Deep-setting of Milk at different Temperatures.

The test was conducted for six days—28th May to 4th June—and included six settings of morning milk and six settings of evening milk in each case. The whole quantity of milk used was herd milk, and was thoroughly mixed in a large vessel before it was divided into three lots. The setting period was 22 hours. Table I shows the average results from the 12 tests:—

TABLE I.

Temperature of Milk when set.	98° Fahr.	88° Fahr.	78° Fahr.
Quantity of milk set..... Lb.	35	35	35
Per cent of butter-fat in milk.....	3.48	3.48	3.48
Temperature of water..... Fahr.	49°	49°	49°
Quantity of skim-milk..... Lb.	29.6	29.8	30.25
Per cent of butter-fat in skim-milk.....	0.62	0.64	0.71
Quantity of fat in whole milk..... Lb.	1.22	1.22	1.22
do left in skim-milk..... “	0.183	0.190	0.214
Percentage unrecovered	15.04	15.63	17.60

This experiment shows that the loss of butter-fat—unrecovered from the skim-milk—was only .59 of 1 per cent greater, when milk was set 88° Fahr., than when it was set 98° Fahr.; and that the loss of unrecovered butter-fat was 2.53 per cent greater when milk was set at 78° Fahr. than when it was set at 98° Fahr.

Experiment in Immediate vs. Delayed Setting of Milk.

This test was conducted for six days—from 27th July to 2nd August—and included six settings of morning milk and six settings of evening milk in each case. The milk was herd milk, and was mixed immediately after milking, before it was divided into two lots. One lot was set at once in a deep-setting pail, in ice water, of a temperature of 38° Fahr.; another lot was left in a pail in the dairy room for one hour, and was then set in ice water, under conditions precisely similar. The following Table shows the average results from the morning and evening tests:—

TABLE II.

	Morning Milk.		Evening Milk.	
	Immediate setting.	Delayed one hour.	Immediate setting.	Delayed one hour.
Quantity of milk set Lb.	35	35	35	35
Per cent of butter-fat in milk.....	3.53	3.53	3.93	3.93
Temperature when set .....Fahr.	98°	88°	98°	88°
Per cent of butter-fat in skim-milk.....	.48	.96	.65	1.20
Highest per cent of butter-fat in skim-milk.....	.9	1.2	.9	1.8
Lowest do do do .....	.4	.75	.4	.7
Setting period in hours.....	22	21	22	21
Quantity of fat in whole milk..... Lb.	1.23	1.23	1.37	1.37
do left in skim-milk..... “	0.139	0.278	0.188	0.348
Percentage unrecovered.....	11.31	22.63	13.76	25.40

This experiment shows that the loss of unrecovered butter-fat—which was left in the skim-milk—was 11.48 per cent greater, when the setting of milk in deep-setting pails in ice water was delayed one hour, than it was when the milk was set immediately.

Experiment in Deep-setting of Milk for 11 Hours vs. 22 Hours.

This test was continued for six days—from 12th August to 18th August—and comprised six settings of morning milk and six settings of evening milk in each case. The milk was mixed herd milk, and was set immediately after it reached the dairy building in deep-setting pails, in ice water of a temperature of 38° to 40° Fahr.

Table III shows the average results from the 24 settings of milk.

TABLE III.

Setting Period....	Morning Milk.		Evening Milk.	
	11 Hours.	22 Hours.	11 Hours.	22 Hours.
Quantity of milk set..... Lb.	35	35	35	35
Per cent of butter-fat in milk	3.61	3.61	4.27	4.27
Temperature when set .....Fahr.	96°	96°	95°	94°
Per cent of butter-fat in skim-milk.. . . .	.98	.55	.97	.65
Highest per cent of butter-fat in skim-milk.....	1.4	.8	1.6	.8
Lowest do do do .....	.7	.3	.8	.4
Quantity of fat in whole milk..... Lb.	1.26	1.26	1.49	1.49
do left in skim-milk..... “	0.284	0.159	0.281	0.188
Percentage unrecovered.....	22.55	12.65	18.87	12.65

This experiment shows that the loss of unrecovered butter-fat was 9·9 per cent greater for the morning milk, and 6·22 per cent greater for the evening milk, when the milk was set in deep pails for 11 hours, than it was when the milk was set for 22 hours.

Experiment on the effect of adding Water to Milk in Deep-setting.

The test was carried on for six days—from 24th September to 1st October—and included six settings of morning milk and six settings of evening milk, or 36 settings in all. The milk used was herd milk, and was mixed in one vessel, before any difference of treatment was given. To one lot, 25 per cent of water at a temperature of 160° Fahr. was added; to another lot, 25 per cent of water at a temperature of 60° Fahr. was added; and the third lot was set under similar conditions with the others, and without the addition of any water.

The following Table shows the average results from 12 settings in each case; the setting period was 22 hours:—

TABLE IV.

	25 per cent of Water at 160° Fahr. added.	25 per cent of Water at 60° Fahr. added.	No Water added.
Quantity of milk set..... Lb.	25	25	35
Percentage of butter-fat in milk.....	3·52	3·52	3·52
Temperature of milk when mixed.....Fahr.	92°	92°	92°
do milk when set.....	110°	82°	92°
do water in tank.....	38°	38°	38°
Percentage of fat left in skim-milk.....	·63	·60	0·58
Quantity of fat in whole milk..... Lb.	0·88	0·88	1·23
do left in skim-milk..... “	0·130	0·124	0·168
Percentage unrecovered.....	14·82	14·11	13·67

This experiment shows that there was practically no appreciable difference (1·15 per cent) between the percentages of unrecovered fat left in the skim-milk, when 25 per cent of water at 160° Fahr., 25 per cent of water at 60° Fahr., and no water added, were the differences of treatment in the setting of milk, in deep-setting pails in ice water.

Four Experiments in the Creaming of Milk from Cows at different stages of Lactation, by the Deep-setting method.

For these tests, which were conducted in November, the cows of the herd were divided into three groups, according to the length of time during which they had been milking since the last calving.

Group I contained the cows which had been milking for periods ranging from 8 to 11 months, and was made up of 1 Shorthorn, 1 Shorthorn grade, 2 Jerseys, 1 Holstein, 1 Devon and 1 Quebec Jersey.

Group II contained the cows which had been milking for periods ranging from 5 to 7 months, and was made up of 6 Quebec Jerseys, 2 Shorthorn grades and 1 Devon.

Group III contained the cows which had been milking for periods ranging from 1 to 3 months, and was made up of 3 Ayrshires, 3 Holsteins, 2 Shorthorns, 1 Shorthorn grade and 1 Polled Angus.

The setting period in all cases was 22 hours.

THE FIRST EXPERIMENT was conducted for five days. The milk was set in cold water, in which no ice was used, of a temperature of 47° Fahr.

Table V shows the average results from five tests of the setting of morning milk and five tests of the setting from evening milk of each group, or 30 settings in all:—

TABLE V.

	GROUP I.		GROUP II.		GROUP III.	
	Morning Milk.	Evening Milk.	Morning Milk.	Evening Milk.	Morning Milk.	Evening Milk.
Quantity of milk set. Lb.	33	31	34	30	35	35
Per cent of butter-fat in whole milk. . .	3·86	4·26	3·80	4·17	2·86	3·6
Temperature when set Fahr.	87°	88°	89°	87°	91°	91°
Per cent of butter-fat left in skim-milk..	1·14	1·55	1·84	1·5	·65	1·13
Quantity of fat in whole milk. Lb.	1·27	1·32	1·29	1·25	1·00	1·26
do left in skim-milk. “	0·311	0·398	0·518	0·372	0·188	0·327
Percentage unrecovered.	24·54	30·15	40·18	29·82	18·85	26·00

THE SECOND EXPERIMENT in this series was continued for four days. The milk was set immediately after it reached the dairy building from the stables, in ice water, which was maintained at a temperature of 38° Fahr.

Table VI shows the results from the four settings of morning milk and the four settings of evening milk, from each group, or 24 settings in all:—

TABLE VI.

	GROUP I.		GROUP II.		GROUP III.	
	Morning Milk.	Evening Milk.	Morning Milk.	Evening Milk.	Morning Milk.	Evening Milk.
Quantity of milk set. Lb.	35	27	35	31	35	34
Per cent of butter-fat in whole milk. . .	3·95	4·42	3·9	4·17	2·8	3·15
Temperature when set Fahr.	89°	92°	92°	94°	93°	95°
Per cent of fat left in skim-milk.	1·2	1·7	1·05	1·05	·45	·55
Quantity of fat in whole milk. Lb.	1·38	1·19	1·36	1·29	0·98	1·07
do left in skim-milk. “	0·348	0·380	0·304	0·269	0·130	0·154
Percentage unrecovered.	25·22	31·95	22·39	20·85	13·26	14·48

THE THIRD EXPERIMENT in the series lasted for four days. The milk was re-heated to 98° Fahr. after it reached the dairy building, and was set immediately thereafter in ice water, which was maintained at a temperature of 38° Fahr.

Table VII shows the results from the four settings of morning milk and the four settings of evening milk, from each group, or 24 settings in all :—

TABLE VII.

	GROUP I.		GROUP II.		GROUP III.	
	Morning Milk.	Evening Milk.	Morning Milk.	Evening Milk.	Morning Milk.	Evening Milk.
Quantity of milk set Lb.	32	26	34	31	35	34
Per cent of butter-fat in whole milk. . .	3·71	3·9	3·8	4·2	3·1	3·6
Temperature when set Fahr.	98°	98°	98°	98°	98°	98°
Per cent of fat left in skim-milk.	1·5	1·65	1·15	1·02	·45	·52
Quantity of fat in whole milk. ... Lb.	1·19	1·01	1·29	1·30	1·08	1·22
do in skim-milk. “	0·397	0·356	0·324	0·308	0·130	0·146
Percentage unrecovered.	33·40	35·19	25·11	23·70	12·08	12·00

THE FOURTH EXPERIMENT in the series extended over five days. To the milk from Groups I and II, 10 per cent of water was added before it was set; the milk from Group III was delayed in setting for half an hour, then reheated to 98° Fahr., and set immediately afterwards, without the addition of water.

Table VIII shows the results from the five settings of morning milk and the five settings of evening milk from each group, or 30 settings in all :—

TABLE VIII.

	GROUP I.		GROUP II.		GROUP III.	
	Morning Milk.	Evening Milk.	Morning Milk.	Evening Milk.	Morning Milk.	Evening Milk.
Quantity of milk set.....Lb.	33	25	34	31	35	35
Per cent of butter-fat in whole milk...	3·70	3·96	3·52	3·8	3·	3·24
do water added.....	10	10	10	10	0	0
Temperature when set.....Fahr.	98°	98°	98°	98°	98°	98°
Per cent of fat in skim-milk.....	1·75	1·40	1·25	1·26	·54	·62
Quantity of fat in whole milk Lb.	1·22	0·99	1·20	1·18	1·05	1·13
do skim-milk “	0·478	0·290	0·352	0·324	0·156	0·180
Percentage unrecovered.	39·22	29·29	29·34	27·43	14·91	15·91

The next Table has been arranged to show the relative efficiency of the creaming which resulted from the different treatments of the milk, in each of the four experiments of the series. The comparison between the different treatments requires this explanation: The different treatments were given to the milk of the same cows upon four consecutive weeks. That did not afford a basis, for a comparison of the effects of different setting conditions on milk, as sufficient or as reliable as when different portions of herd milk, from the same cows on the same day, are subjected to different setting conditions for creaming. This experiment provided for treating the milk from the different groups alike on the same days, as the comparison was between the milks of the different groups, and not between the different methods of setting.

Table IX shows the percentage of unrecovered fat, which was left in the skim milk in the case of each of the three groups of cows, during each of the four experiments:—

TABLE IX.

	Group I.	Group II.	Group III.
FIRST EXPERIMENT.—Milk set in water of a temperature of 47° Fahr.....	27·34	35·00	22·42
SECOND EXPERIMENT.—Milk set in ice water of a temperature of 38° Fahr.....	28·58	21·62	13·87
THIRD EXPERIMENT.—Milk re-heated to 98° and set in ice water of a temperature of 38° Fahr.....	34·29	24·40	12·04
FOURTH EXPERIMENT.—10 per cent of water added to milk of Groups I and II; milk of Group III delayed half an hour, then re-heated to 98° Fahr.....	34·25	28·38	15·41
Average of four experiments	31·11	27·35	15·93

These four experiments in the setting of milk in deep-setting pails, with 36 setting tests for the milk of each of three groups of cows, show:—

(1.) That 31·11 per cent of the butter-fat was not recovered from the skim-milk, in the case of the group of cows which had been milking for periods of from 8 to 11 months each.

(2.) That 27·35 per cent of the butter-fat was not recovered from the skim-milk, in the case of the group of cows which had been milking for periods of from 5 to 7 months each.

(3.) That 15·93 per cent of the butter-fat was not recovered from the skim-milk, in the case of the group of cows which had been milking for periods of from 1 to 3 months each.

Experiment in Deep-setting, as compared with Shallow-pan Setting, with the Milk from Cows of Groups I and II.

The cows which composed Groups I and II were the same as those described for the series of experiments which have been recorded in Tables V to IX. A portion in each case was set in an ordinary shot-gun, deep-setting pail, of 8½ inches diameter, set in water without ice, of a temperature of 45° Fahr.; another portion of the mixed milk was set in shallow-pans to a depth of 2½ inches.

The milk was set in each case for a period of 22 hours.

The test was continued for five days—8th to 12th December, 1891.

The following Table shows the results:—

TABLE X.

Method of Setting.	GROUP I (Milking 9 to 12 months).				GROUP II (Milking 6 to 8 months).			
	Deep-setting.		Shallow-pan.		Deep-setting.		Shallow-pan.	
	Morn- ing Milk.	Even- ing Milk.	Morn- ing Milk.	Even- ing Milk.	Morn- ing Milk.	Even- ing Milk.	Morn- ing Milk.	Even- ing Milk.
Quantity of milk set..... Lb.	19	.....	8	8	24	24	8	8
Per cent of butter-fat in milk .	4·1	.....	4·1	4·8	4·1	4·6	4·1	4·6
Temperature of milk when skimmed... ..Fahr.	45°	.....	55°	55°	45°	45°	55°	55°
Quantity of cream obtained... Lb.	3·5	.....	1·5	1·5	4	4	1·5	1·5
do of skim-milk. “	15·5	.....	6·5	6·5	20	20	6·5	6·5
Per cent of fat left in skim-milk..	2·1	.....	·27	·21	2·3	2·6	·25	·35
Quantity of fat in whole milk.. Lb.	·779	.....	·328	·384	·984	1·104	·328	·368
do of fat left in skim- milk “	·325	.....	·017	·014	·460	·520	·016	·022
Percentage unrecovered.. .. .	41·72	.....	5·18	3·65	46·75	47 10	4·88	5·98

This experiment shows that the loss of unrecovered butter-fat left in the skim-milk, from the milk of cows at the milking periods of from 6 to 12 months since calving, was 40·27 per cent greater when the milk was set in deep-setting pails, in water at a temperature of 45° Fahr., than when it was set in shallow-pans to a depth of 2½ inches.

During the winter season, as well as during the summer, it seems necessary, in order to obtain efficient creaming by means of deep-setting pails, to use ice-water of a temperature at or below 40° Fahr. That appears to be particularly essential in the setting of milk from cows which have been milking for periods of more than 6 months. To prevent any one from inferring a misleading conclusion from Table X, the following Table has been prepared to show the results from the testing of the mixed milk from the whole herd, for a period of three months. The trials of the different methods of separating the cream, of which the average results appear in Table XI, lasted for one week in every month in each case. The full report of this experiment, which is not yet completed, will appear in the next annual report.

TABLE XI.

	Centrifugal Cream Separator.	Deep-setting in Ice-water at 38°.	Shallow-pan setting to depth of 2½ in.
Per cent of butter-fat in whole milk.....	3·82	3·81	3·82
Quantity of milk per lb. of butter..... Lb.	23·71	25·97	24·91
do butter obtained per lb. of butter-fat in whole milk “	1·104	1·005	1·051

The results of these experiments, and of the series of experiments recorded from Tables V to X, seem to indicate:—

(1.) That by the deep-setting of milk from cows which have been milking for periods of 5 to 12 months in cold water of a temperature of 45° or 48° Fahr., without the use of ice, about 37 per cent of the butter-fat was left in the skim-milk; and by setting in ice water of a temperature of 38° Fahr. about 28 per cent of the butter-fat was left in the skim-milk.

(2.) That during the fall and winter, particularly, the use of shallow-pans for the setting of milk from cows, which have been milking for periods of from 5 to 12 months, will permit the recovery in the cream of about 95 per cent of the butter-fat in the whole milk.

(3.) That the use of the centrifugal cream separator will enable the dairyman to recover practically the whole of the butter-fat into the cream, from the milk of cows at all stages of lactation, and during all seasons of the year.

Experiment in the Setting of Milk in a Cheese-factory Milk-can, 15 inches in diameter and in a Shot-gun Can, 8½ inches in diameter.

Among the patrons of cheese factories, the practice of using the cheese-factory milk-cans for the setting of milk for cream, after the close of the cheese-factory season, is a common one. A comparison between setting milk in a milk-can 15 inches in diameter and an ordinary shot-gun can 8½ inches in diameter, was made by setting morning milk for three days, and evening milk for three days, between 9th and 14th November. A quantity of herd milk was mixed before it was divided into two portions. It was put into the two cans, to an equal depth—about 19 inches. Both lots were set in ice-water, at 38° Fahr., for 22 hours.

The following Table shows the result:—

TABLE XII.

	Milk-can, 15 inches diameter.		Shot-gun Pail, 8½ inches diameter.	
	Morning Milk.	Evening Milk.	Morning Milk.	Evening Milk.
Quantity of milk in three settings..... Lb.	315	315	105	105
Per cent of butter-fat in milk.	3·36	3·46	3·36	3·46
do fat left in skim-milk.....	71	73	45	47
Quantity of fat in whole milk..... Lb.	10·58	10·90	3·53	3·63
do left in skim-milk "	1·83	1·88	39	40
Percentage unrecovered.....	17·32	17·27	11·05	11·13

This experiment shows that the loss of unrecovered fat—left in the skim-milk—was 6·2 per cent greater, by the use of a milk-can 15 inches in diameter, than by the use of a deep-setting pail 8½ inches in diameter.

Experiments in the Churning of Cream.

The first series of experiments was undertaken to discover what difference, if any, in the product of butter, resulted from the churning of cream obtained by the deep-setting method, from the milk of three groups of cows at different stages of

lactation. The cows which composed the three groups were the same as those described in Tables V to IX, viz. :—

Group I contained cows which had been milking for periods ranging from 8 to 11 months.

Group II contained cows which had been milking for periods ranging from 5 to 7 months.

Group III contained cows which had been milking for periods ranging from 1 to 3 months.

THE FIRST TRIAL was made on 28th November. A portion of the milk of two days was used from the cows of each group.

The milk was set immediately after it reached the dairy building, at a temperature of 96° Fahr., in deep-setting pails, in ice-water of a temperature of 38° Fahr.

The setting period was 22 hours.

In each case 5 per cent of fermentation starter was added, and the cream of the three lots was ripened to as nearly the same stage of acidity as possible.

The ripening period in this trial was 12 hours.

Table XIII shows the result of the first trial of churning cream from the milk from each of the three groups.

TABLE XIII.

	Milk from		
	Group I.	Group II.	Group III.
Quantity of milk set..... Lb.	121	138	248
Per cent of butter-fat in milk.....	4·3	4·1	3·1
Creaming—			
Quantity of cream..... Lb.	26	27	38
Per cent of fat left in skim-milk.....	1·20	1·00	·65
Churning—			
Churning temperature.....Fahr.	64°	64°	62°
Minutes churned.....	150	100	40
Revolutions of churn per minute.....	65	65	66
Quantity of butter obtained..... Lb.	4·75	5·75	8·01
do buttermilk..... “	21	21	30
Per cent of fat left in buttermilk.....	·20	·30	·20
Results—			
Quantity of fat in whole milk..... Lb.	5·20	5·66	7·69
do do left in skim-milk and buttermilk..... “	1·18	1·17	1·42
do of milk per lb. of butter..... “	25·5	24°	31°
Percentage of fat unrecovered.....	22·69	20·67	18·46

THE SECOND TRIAL was made on 30th November. A portion of the milk of two days was used from the cows of each group. The milk was re-heated to a temperature of 98° after it reached the dairy building, and was set immediately thereafter in deep-setting pails, in ice-water of a temperature of 38° Fahr.

The setting period was 22 hours.

In each case 5 per cent of fermentation starter was added, and the cream of the three lots was ripened to as nearly the same stage of acidity as possible.

The ripening period in this trial was 15 hours.

Table XIV shows the result of the second trial of churning cream from the milk from each of the three groups.

TABLE XIV.

	Milk from		
	Group I.	Group II.	Group III.
Quantity of milk set Lb.	114	137	279
Per cent of butter-fat in milk	4	4.1	3.1
Creaming—			
Quantity of cream Lb.	22	27	51
Per cent of fat left in skim-milk	1.35	1.00	0.55
Churning—			
Churning temperature Fahr.	64°	64°	62°
Minutes churned	180	100	50
Revolutions of churn per minute	60	65	66
Quantity of butter obtained Lb.	4.12	5.25	9.75
do buttermilk “	17	21	41
Per cent of fat left in buttermilk . . . . .	.45	.35	.30
Results			
Quantity of fat in whole milk Lb.	4.56	5.62	8.65
do left in skim-milk and buttermilk “	1.31	1.17	1.37
Quantity of milk per pound of butter “	27.6	26.1	28.6
Percentage of fat unrecovered	28.73	20.82	15.84

THE THIRD TRIAL was made on 4th December. A portion of the milk of two days was used from the cows of each group. The milk was re-heated to a temperature of 95° after it reached the dairy building. To the milk from Groups I and II, 10 per cent of water was added, before it was set; the milk from Group III was delayed in setting for half an hour; it was re-heated to 98° and set without the addition of water. The three lots were set in deep-setting pails, in ice-water of a temperature of 38° Fahr. The setting period was 22 hours. In each case 5 per cent of fermentation starter was added to the cream, and each lot was ripened to as nearly the same stage of acidity as possible. The ripening period in this trial was 16 hours.

Table XV shows the result of the third trial of churning the cream from the milk, from each of the three groups.

TABLE XV.

	Milk from		
	Group I.	Group II.	Group III.
Quantity of milk set. Lb.	116	121	308
Per cent of butter-fat in milk.	3.6	3.8	3.8
Creaming—			
Quantity of cream. Lb.	23	24	62
Per cent of fat left in skim-milk.	1.60	1.30	.50
Churning—			
Churning temperature. Fahr.	70	64	62
Minutes churned	49	85	49
Revolutions of churn per minute.	65	65	66
Quantity of butter obtained Lb.	3.25	4.75	12.00
Quantity of buttermilk. “	19	19	50
Per cent of fat left in buttermilk . . . . .	.35	.15	.20
Results—			
Quantity of fat in whole milk. Lb.	4.18	4.60	11.70
Quantity of fat left in skim-milk and buttermilk. “	1.55	1.28	1.33
Quantity of milk per lb. of butter. “	31	25.5	25.6
Percentage of fat unrecovered	37.79	27.82	11.37

Table XVI shows the length of time required for churning, and the percentage of butter-fat left in the buttermilk, from the three trials in each case.

TABLE XVI.

No. of Trial....	Group I.			Group II.			Group III.		
	First.	Second.	Third.	First.	Second.	Third.	First.	Second.	Third.
Churning temperature, Fahr...	64°	64°	70°	64°	64°	64°	62°	62°	62°
Minutes churned.....	150	180	49	100	100	85	40	50	49
Revolutions of churn per minute	65	60	65	65	65	65	66	66	66
Percentage of fat left in buttermilk	·20	·45	·35	·30	·35	·15	·20	·30	·20

The conclusions which were indicated by these churning experiments were :—

(1) That the cream from the milk of cows, which have been milking for periods of from five to eleven months, should be churned at a temperature of from 66° to 70° Fahr., in order to obtain butter in from one hour to three-quarters of one hour.

(2) That the loss of fat unrecovered from the buttermilk, was practically the same, viz., ·33, ·26, ·23 of 1 per cent of fat, left in the buttermilk, from Groups I, II and III, respectively.

(3) An examination of the butter showed a decided absence of rosy and delicate flavour in the butter obtained from the milk of cows which had been milking for longer than five months.

The second series of experiments in the churning of cream was made to determine the effect on the quantity of butter which could be obtained by churning cream at different stages of ripeness or acidity.

THE FIRST TRIAL was conducted on the 29th August; 120 lb. of cream were taken from 676 lb. of milk. The whole quantity of cream was mixed thoroughly, and afterwards divided into two equal lots. One lot was ripened by the addition of fermentation starter, and by being kept at a temperature of 64°; the other lot was cooled to 40° and kept sweet until the following day. Both lots were then divided into equal portions of 30 lb. each; 30 lb. of the sour ripened cream was then mixed with 30 lb. of the sweet cream, leaving three lots for churning, as shown in the following :—

Lot 1, sour cream.....	{	30 lb., sour, in churn No. 1.
		30 lb. }
		} mixed, in churn No. 2.
	30 lb. }	
Lot 2, sweet cream.....	{	30 lb. sweet, in churn No. 3.
		30 lb. }

A SECOND TRIAL was made on the 10th September, when 120 lb. of cream were taken from 774 lb. of milk. The whole quantity of cream was treated in the manner which has been described in the first trial.

The following Table shows the results from the two trials of churning cream at different stages of ripeness.

TABLE XVII.

First Trial.				Second Trial.		
No. of churn.....	No. 1	No. 2	No. 3	No. 1	No. 2	No. 3
Daisy churn..... Size.	No. 2	No. 5	No. 2	No. 2	No. 5	No. 2
Quantity of milk..... Lb.	169	338	169	194	387	194
do cream..... "	30	60	30	30	60	30
Stage of ripeness.....	Sour.	Mixed.	Sweet.	Sour.	Mixed.	Sweet.
Churning temperature..... Fahr.	59°	60°	60°	62°	62°	62°
Minutes churned.....	53	35	65	40	30	65
Revolutions of churn per minute.....	66	62	68	66	64	68
Quantity of butter obtained..... Lb.	6·5	12·7	6·	7·25	13·75	6·
do milk per lb. of butter ..	26·	26·6	28·1	26·7	28·1	32·3
Per cent of fat left in buttermilk.....	20	50	1·30	15	90	2·00

These trials showed:—

(1.) A longer churning period for the sweet cream than the sour; (the mixed cream was churned in shortest time, because the revolving barrel churn, size No. 5, was a larger size than No. 2);

(2.) 14·6 per cent more milk or cream of equal quality, required to yield each pound of butter, when the cream was churned sweet, than when it was churned sour;

(3.) The buttermilk from sweet cream to contain 1·65 per cent of fat, as compared with 17 of 1 per cent of fat in the buttermilk from sour cream.

Other experiments on this matter are in progress.

Experiments on the Heating of Milk to 150° Fahr.

The heating of milk and cream to the scalding point—150° Fahr.—has been undertaken in some places, to sterilize them for keeping qualities and for wholesomeness in table use. Cream has been sterilized also for the purpose of regulating the degree of acidity which would be developed in a given time by the addition of a percentage of fermentation starter of known strength or acidity. Before undertaking a series of trials in the sterilizing of milk and cream, for the purposes which have been mentioned, a few tests were made to discover the effect of scalding milk and cream to 150° Fahr., upon the quantity, odour and flavour of the butter.

THE FIRST TRIAL was made on 10th October. 350 lb. of milk were mixed, after which 190 lb. were heated to 150° Fahr. Both lots were then set in deep-setting pails, in ice-water of a temperature of 38° Fahr.

The setting period was 22 hours.

A SECOND TRIAL was made on 12th October, when 360 lb. of milk were used. The treatment was similar to that of the first trial.

Table XVIII shows the results of heating milk to 150° Fahr., before setting in deep-setting pails in ice-water, from both trials.

TABLE XVIII.

	First trial.		Second trial.	
Quantity of milk set..... Lb.	190	160	195	165
Per cent of butter-fat in milk	3.40	3.40	3.40	3.40
Temperature when set..... Fahr.	150°	96°	150°	96°
Creaming—				
Quantity of cream..... Lb.	31	30	31.5	30
Per cent of fat left in skim-milk.....	1.00	.35	.90	.40
Ripening cream—				
Temperature..... Fahr.	67°	67°	64°	64°
Per cent of fermentation starter added.....	10	10	5	5
Ripening period..... Hrs.	10	11	16	16
Churning—				
Churning temperature..... Fahr.	64	64°	64°	64°
Minutes churned.....	60	100	60	90
Revolutions of churn per minute.....	65	65	65	68
Quantity of butter obtained..... Lb.	5.75	5.50	5.80	5.75
Per cent of fat left in buttermilk.....	.15	.15	.3	.3
Results—				
Quantity of fat in whole milk..... Lb.	6.46	5.44	6.63	5.61
do do left in skim-milk and butter-milk..... “	1.64	.49	1.55	.61
do of milk per lb. of butter..... “	33.4	29.1	33.6	29
Percentage of fat unrecovered.....	25.38	9.01	23.38	10.87

These two trials point to the conclusions:—

(1.) When the milk was heated to 150° Fahr., before being set in deep-setting pails, $4\frac{1}{2}$ lb. or 15.5 per cent more of milk was required to yield each pound of butter, than when the milk was set at a temperature of 96° Fahr.

(2.) When the milk was heated to 150° Fahr., 14.4 per cent more of the fat in the whole milk was not recovered from the skim-milk and butter milk, than when the milk was set at 96° Fahr.

(3.) In both trials the butter from the milk, which was not heated to 150°, was decidedly better in flavour and odour than the other lots.

Experiments in the heating of Cream to 150° Fahr.

The two trials in this experiment were conducted on 21st and 26th October. The main object was to discover the effect of scalding cream to a temperature of 150° Fahr., upon the odour and flavour, which are introduced into the milk and its products

from the feeding of turnips to cows. The cows were fed lightly upon turnips at first ; and at the time when the milk was obtained for the second trial they were consuming 90 lb. of turnips per head per day in their ration. That excessive quantity was fed to make the trial of a treatment for expelling the turnip odour and flavour more emphatic one way or the other.

FOR THE FIRST TRIAL the milk of two days, weighing 758 lb., was set each day at a temperature of 96° in deep-setting pails, in ice-water of a temperature of 38°. From the two days' milk 140 lb. of cream were obtained. That quantity was divided into two equal portions, one of which was heated to 150° Fahr.

FOR THE SECOND TRIAL the milk of one day, weighing 387 lb., was set at a temperature of 96°, in deep-setting pails, in ice-water of a temperature of 38°. From the milk, 70 lb. of cream were obtained. That quantity was divided into two portions, one of which was heated to 150° Fahr.

Table XIX shows the details of treatment afterwards, and also the results in the quantity of the butter and the percentage of loss of the fat.

TABLE XIX.

	First trial.		Second trial.	
Quantity of milk set.....Lb.	380	378	191	196
Percentage of butter-fat in milk	3·6	3·5	3·6	3·6
Temperature when set.....Fahr.	96°	96°	96°	96°
Creaming—				
Quantity of cream.....Lb.	70	70	35	35
Percentage of fat left in skim-milk.....	45	55	51	60
Cream heated to.....Fahr.	150°	65°	150°	68°
Cream cooled to.....“	50°		50°	
Ripening Cream—				
Temperature.....Fahr.	65°	65°	65°	68°
Percentage of fermentation starter added.....	6	6	6	6
Ripening period.....Hours	14	14	14	16
Churning—				
Churning temperature.....Fahr.	61°	64°	64°	64°
Minutes churned.....	35	40	45	50
Revolutions of churn per minute	65	66	66	66
Quantity of butter obtained.....Lb.	14	1·35	7	7·2
Percentage of fat left in buttermilk.....	4	3	1	3
Results—				
Quantity of fat in whole milk.....Lb.	13·68	13·23	6·88	7·06
Quantity of fat left in skim-milk and buttermilk.....“	78	70	86	98
Quantity of milk per lb. of butter.....“	27·1	28°	27·3	28°
Percentage of fat unrecovered	13·01	12·85	12·5	13·88

These two trials point to the conclusions :—

(1.) When the cream was heated to 150° Fahr., before being ripened for churning, $\frac{8}{10}$ of 1 lb. less milk was required to yield each pound of butter than when the cream was not heated above 68° Fahr.

(2.) The percentage of fat unrecovered from the buttermilk, was practically the same in both cases.

(3.) In both trials, the butter obtained from the cream, which was heated to 150° Fahr., had no flavour or odour of turnips, and was decidedly better in every respect than the other two lots.

(4.) In both trials, the butter obtained from the cream, which was not heated above 68° Fahr., had a distinct odour and flavour of turnips, the lot from the last trial on 26th October giving a particularly strong smell and taste of turnips.

(5.) In both trials, the butter obtained from the cream, which was heated to 150° Fahr., was excellent in flavour and grain. It was rated at 37 and 36 for flavour out of a possible 40 (perfection); and at 30 (perfection) for grain.

(6.) In both trials, the butter obtained from the cream, which was not heated above 68° Fahr., was rated lower than the other lots. The points awarded to it were:—flavour, 35 and 25, out of a possible 40 (perfection);—and grain, 30 and 29, out of a possible 30 (perfection).

NOTE.—The butter was re-examined in glass jars, on 8th March, 1892, when the previous judgment was confirmed.

Disposal of Dairy Products.

The record of the quantities of milk received at the experimental dairy building from May—when the work there commenced—until December, and the disposition which was made of the same, is submitted herewith.

Milk received at the dairy for experimental work :

	Lb.
May.....	12,795
June	11,522
July.....	10,428
August.....	7,502
September.....	7,352
October.....	11,322
November.....	8,936
December	6,501

76,358

	Lb.
Butter in lb. prints, sold at 22c. and 25c. per lb.....	1,939½
Butter in tubs and experimental jars, sold.....	321
do do do on hand.	210

2,470½

	Quarts.
Cream sold to residents on the farm at 20c. per quart....	127½

	Quarts.
Buttermilk sold at 2c. per quart.....	404

The skim-milk and the remainder of the buttermilk were fed to calves and pigs.

	Quarts.
Milk sold to residents on the farm at 4c. and 5c. per quart.	6,634½

PART IV.—FORTY-ACRE LOT.

In the spring of the year it was arranged that about 40 acres of land should be set apart for the particular object of growing feed for cattle, in order to ascertain and illustrate how many cattle could be fed for the whole year upon the product of that area. In many parts of Canada an impression has prevailed that farmers

cannot keep or feed at a profit large herds of cattle unless they have large farms. In most instances the estimate is that six full-grown cattle, and an equal number of young growing stock, are as many as can be fed conveniently on the fodder and coarse grain crop of a farm of representative size, of say 55 acres of cleared land. As a matter of fact, the average number of horned cattle kept per farm is about four head of full grown animals, and an equal number of growing young stock. It appears to me that the numbers of cattle might be doubled, with increasing profit to the farmers, and decided gain to the fertility of the fields. A further extension and improvement in mixed farming, which will cause more cattle to be fed on fewer acres, is capable of great service to the whole agricultural interest of the Dominion. This experiment has been in progress for only six months of the year. The full report can be made with satisfaction only at the close of each twelve months. The following report of progress will show the areas of land under different crops, and the yields of each which were obtained. In a general way, it may be said that the yield of crops did not reach my anticipations. The corn crop was the lightest per acre which has been gathered for three years, and a disastrous hail storm on 13th August beat down the grain crops and battered the leaves of the corn to a very serious extent. The recurrence of an injury from that cause is unlikely in coming years, as it has been infrequent in past years. Continued rains during the harvest season caused further losses in the grain crops. Notwithstanding these drawbacks, the experience of the year points to the probability that 25 milch cows will be fed, wholly or nearly so, on the product of the 40-acre lot for eleven months. On 2nd July 25 cows were put in one herd, to be fed from its crops. The milk from them furnishes a supply for experimental dairy work; and feeding experiments are being conducted with them, on different rations, as described in Parts I and III of this report:—

TOTAL YIELD OF CROPS FROM 40-ACRE LOT.

Ripened Crops.

	Lb. of Straw.	Lb. of Grain.
8 acres, mixed crop, as in Table I	26,454	13,245
3 acres { Golden Vine Pease.....		905
{ Goose Wheat.....	1,003	437
{ Beardless Barley.....	3,102	1,373
{ Banner Oats.....	2,790	2,060
3 acres, in 5 plots of mixed crop, similar to plots 1 to 5 in Table I.....	10,442	4,345
<hr/> 14 Totals	<hr/> 43,791	<hr/> 22,365
<hr/> <hr/>		

Root Crops.

	Lb.
1 acre, Carrots	26,785
1 acre, Mangels and Turnips { Mangels	8,110
{ Turnips	9,655
1 acre, Turnips	29,584
<hr/> 3 Total.....	<hr/> 74,134
<hr/> <hr/>	
$\frac{1}{2}$ acre, Cabbage and Kohl Rabi.....	15,296
<hr/> <hr/>	

Cured Fodder Crops.

- 2 acres, Spring Rye, wilted 12 hours and put in silo, 14,080 lb.
Mixed crop, cereals, second cutting, 1,825 lb.
11½ acres, Corn, wilted on an average two days, and put in silo, 130 tons 1,750 lb.
(That is equal to 183 tons 450 lb., green weight.)
1 acre, Corn, stooked in field to cure, 11,940 lb., as weighed February, 1892.

14½

- 1½ acres, Corn, fed green to the cattle (from 7th August), with mixed crop.
4½ acres, pastured.
3 acres, mixed crop, as in plots 1 to 5, fed green; nearly 1½ acres of this was used in erecting paddocks for the bulls, and the crop on it was partially spoiled by the traffic incident to the work.

The following Table and explanatory notes present the details of the different crops:—

Ripened Crops.

EIGHT ACRES MIXED CROPS.—The land had no manure applied for at least five years; it was cropped every year; it was ploughed in the fall of 1890; it was disc-harrowed twice in spring of 1891; the smoothing harrows were used on it twice. It was divided into eight plots, each one acre in size.

A different mixture of grain was sown on each plot.

TABLE I.

	Number of Plot.							
	1	2	3	4	5	6	7	8
Mixture sown —								
Goose Wheat..... Bush.	½	1	1	.....	1	1½	.....	.....
Danish Chevalier Barley. “	¾	1	.....	1	1	.....	1½	.....
Banner Oats..... “	1	.....	1	1	1	.....	.....	1½
Golden Vine Pease..... “	¾	1	1	1	.....	1½	1½	1½
Flax..... Lb.	2	2	2	2	2	.....	.....	.....
Total per acre..... Bush.	3	3	3	3	3	3	3	3
Date sown.....	April 30	April 30	April 30	April 30	April 30	April 30	April 30	April 30
Came up.....	May 12	May 12	May 12	May 12	May 12	May 12	May 12	May 12
Date when ripe.....	Aug. 24	Aug. 17	Aug. 17	Aug. 17	Aug. 17	Aug. 22	Aug. 22	Aug. 22
do cut.....	do 26	do 18	do 17	do 18	do 17	do 25	do 25	do 25
Quantity of straw and grain... Lb.	4,945	4,860	4,975	5,180	4,864	5,175	4,870	4,830
Grain from thresher..... “	1,728	1,595	1,518	1,795	1,808	1,871	1,435	1,495

NOTES.—The mixtures were all sown on 30th April, and came up on 12th May. Two pounds of flaxseed were sown with the mixtures on plots 1 to 5. It ripened, and was ground with the grain for the feeding of cattle. I think at least 3 pounds per acre will give better returns.

The crop from plot 6—wheat and pease—gave the largest yield of grain per acre. That mixture of grain is also the most valuable for feeding in combination with corn ensilage. The second largest yield of grain was on plot 5, from a crop of wheat, barley and oats. I do not recommend this mixture, as I consider that every mixture should contain either pease or vetches. These latter grains do not require to obtain their supply of nitrogen from the nitrates in the soil as the other grains of the mixture do.

Owing to a severe hail storm on 13th August, and rains before and during harvest time, the crops on all the plots were very badly broken down and lodged. In consequence, a large percentage of grain was shelled on the field.

PLOT 1.—Mixture of wheat, barley, oats and pease; all ripened together fairly well, excepting the wheat, which was in the doughy state when the other grains were ripe; cut with the mower, because too badly lodged to be cut with the reaping machine.

PLOT 2.—Mixture of wheat, barley and pease; wheat in doughy state when other grains were ripe, 17th August; badly broken down and lodged; cut with mower.

PLOT 3.—Mixture of wheat, oats and pease; wheat in doughy state when other grains were ripe; badly lodged; cut with mower, 18th August.

PLOT 4.—Mixture of barley, oats and pease; badly lodged; cut with mower, 18th August.

PLOT 5.—Mixture of wheat, barley and oats; wheat in doughy state when other grains were ripe; cut 17th August.

PLOTS 6, 7 and 8.—Mixture of wheat and pease, barley and pease, and oats and pease; all badly lodged, and cut with the mower, 25th August.

THREE ACRES OF GRAIN.—The land, whereon were grown the pease, wheat and barley, was manured in the spring at the rate of from 18 to 20 tons to the acre; it was ploughed, and harrowed twice; part of the pease and wheat crops were taken in, and parts were injured by the enclosing of the bull paddocks which have been mentioned; part of the acre of barley was injured and part of the crop was killed by water standing on it; that was owing to unusually heavy rains and the failure of a drain to work efficiently; the land for the Banner oats adjoined plot 8, and received treatment similar to plots 1 to 8.

THREE ACRES OF MIXED CROP.—The soil was of a peaty character; it received a coating of manure at the rate of from 18 to 20 tons per acre; it was ploughed in spring, and harrowed twice; the mixtures were the same as on plots 1 to 5; they were sown on 9th May and came up on 16th May; parts from the ends of each plot were cut and fed green, as mentioned in the summary of the yield of crops; three acres were left to ripen.

Root Crops.

Three acres were prepared for sowing, one acre each of carrots, mangels and turnips. The land received a coating of manure at the rate of from 18 to 20 tons to the acre. It was ploughed in the spring, harrowed twice, and set up in drills 2½ feet apart.

CARROTS.—Five varieties were sown for comparison, but owing to the wet season, and water standing on part of the plot for several days, the crops were not grown under sufficiently uniform conditions to make any fair comparison of the yield per acre of the different varieties. "Steele's Improved Short White," "Giant Short White," or "White Vosges," "Green Top Orthe," "Improved Half-long White," and "Early Gem," or "Guerande," were the varieties which were sown.

NOTES.—Sown 13th May; came up 26th May; pulled 30th October. Total weight of the five varieties, 26,785 lb. from one acre.

MANGELS.—Five varieties were sown on 13th May and came up on 26th May. The names of the five varieties were "Pearce's Canadian Giant," "Golden Fleshed Tankard," "Giant Yellow Intermediate," "Mammoth Yellow Intermediate," and "Giant Yellow Globe." From 10th June to 14th June cut-worms destroyed about two-thirds of the young plants. The spaces were sown with turnip seed on 15th June. The yield of mangels was 8,110 lb., and of turnips 9,655 lb. from one acre.

TURNIPS.—Five varieties of turnips were sown on 4th June. The names of the varieties were, "Improved Purple Top Mammoth," "Laidlaw's Improved," "Elephant Swede," "Hartley Bronze," and "Rennie's Prize Purple Top." They all came up 10th June. They were pulled 24th October. There was a large percentage of the turnips in one part of the plot diseased. The inside of the roots turned to a jelly-like mass, before there was any easily recognizable evidence on the outside

that decay had set in. A similar disease prevailed in the turnips on other parts of the farm, and in the vicinity of Ottawa on other farms. The total yield of the five varieties was 29,584 lb. from one acre.

CABBAGE AND KOHL RABI.—Half an acre of the land, prepared in the same manner as for the roots, was sown with cabbages and kohlrabi. The cabbages were put in rows 3 feet apart, and the plants were left 2 feet apart in the rows. Four varieties were sown, viz.: "Early Drumhead," "Drumhead Savoy," "Giant Drumhead," and "Thousand Headed, or Kale." They were sown on 14th May and came up on 23rd May. Two-thirds of each variety were eaten by the turnip-flea beetle and cut-worms. The same varieties were sown in their place on 5th June and came up on 12th June. The kohlrabi suffered in a similar manner, and a re-sowing was made on 6th June. The second crop came up on 12th and 13th June. The total weight from the cabbage and kohlrabi was 15,296 lb. from half an acre.

Cured Fodder Crops.

TWO ACRES SPRING RYE.—The land received a dressing of manure, about 18 or 20 tons to the acre; it was ploughed in the spring and harrowed twice with smoothing harrow; sown 1st May; came up 11th May; cut 15th July. When the heads were filled with grain in the doughy or late milk state it was allowed to wilt in the field for twelve hours and then put into the silo; total weight, 7 tons 80 lb. (For remarks on rye ensilage, see report on silos.) The same land was ploughed 17th July, and sown with a mixture of Hungarian grass and millet; this second crop did not come to anything worth mentioning for feed.

FOURTEEN ACRES OF FODDER CORN.—Ten acres of the land were in one block; an oat crop had been taken off in 1890. In the spring of 1891 a dressing of manure, at the rate of about 18 tons to the acre, was given; it was ploughed under, and the land harrowed twice. The soil was very uneven in its character; a part of it was a mellow, sandy loam, with streaks and patches of clay soil of a whitish colour. These patches, in some cases, were 50 feet across; about two acres of it were of a peaty character, with interruptions of loam and patches of clay. Parts of the land had been a swamp four years ago, and portions of it had been burned during the clearing. For these reasons, the yields per acre in that portion of the block did not give results which could be relied upon as guiding to a knowledge of the best practice in planting or in selecting varieties.

FOUR AND ONE-HALF ACRES were devoted to the planting of the varieties of Red Cob, Pearce's Prolific, Longfellow and Thoroughbred White Flint, (1) at rates of 2, 4, 6 and 12 grains respectively to the lineal foot, in rows 3 feet apart, and (2) in rows 3, 4 and 5 feet apart, with about 3 grains to the foot, planted by a seed-drill.

The corn was planted on 23rd May, and was cut on 16th and 17th September. It was left to wilt in bunches on the field for an average of two days before being put into the silo. The total weight after wilting, from the $4\frac{1}{2}$ acres, was 49 tons 1,740 lb. From a test made on another plot, corn was found to have lost 28.5 per cent in weight by wilting in small bunches in bright sunshiny weather for two days. At that rate of shrinkage, the green weight of corn on the $4\frac{1}{2}$ acres would be calculated as 69 $\frac{3}{4}$ tons.

ONE ACRE of Red Cob and Longfellow was planted in rows 3 feet apart, two rows of each alternately, 18 lb. of seed per acre; cut 16th September; wilted two days; weight, 10 tons 785 lb.

ONE ACRE of Thoroughbred White Flint and Pearce's Prolific was planted in a similar way; cut 16th September; wilted two days; weighed 12 tons 350 lb.

ONE ACRE of Red Cob and Longfellow was planted in rows 3 feet apart, with the seed mixed before planting; 18 lb. of seed per acre; cut 14th September; wilted two days; weighed 11 tons 1,685 lb.

ONE ACRE of Thoroughbred White Flint and Pearce's Prolific was planted in a similar way; cut 14th September; wilted two days; weighed 11 tons 1,600 lb.

ONE ACRE of Thoroughbred White Flint and Longfellow was planted in a similar way; cut 14th September; wilted two days; weighed 10 tons 1,745 lb.

HALF AN ACRE Red Cob (corn, 5 lb. and pease 5 lb.) was planted in rows 3 feet apart. The mixture was not a success; the corn was a good crop, but the pease came up too soon and did not use the corn stalks as a trellis. The crop was fed to the cattle green.

TWENTY FEET by width of block, 562 feet, Red Cob corn and pease, were sown by ordinary seed drill with spouts 7 inches apart; corn and pease in alternate drill rows; the corn was of a variety too late in maturing to be mixed with pease; a heavy crop was obtained; fed green; this mixture of corn and pease, in same order of sowing, promises to be useful in obtaining a more complete ration for cattle than corn is in itself.

FOUR ACRES sandy loam; size of the plot, 562 x 310 feet; of it, 562 x 210 feet received a dressing of manure, at the rate of about 18 tons per acre; ploughed in spring; harrowed three times; planted in four lots, one each of Red Cob, Thoroughbred White Flint, Pearce's Prolific, Thoroughbred White Flint and Longfellow; about one acre was fed green; the remainder was cut 18th September; wilted for two days and put into silo; the remainder was stooked in the field, to be used as dried and cured fodder corn.

The cutting of corn to be fed green to the cows commenced on 7th August.

Particulars and Tables, showing the comparative yields, stages of maturity, number of ears per 100 feet, and condition of the corn ensilage, will be found in Part V of this report.

Three and one-fifth acres of fall rye have been sown for feeding in the spring of 1892, and for use as ensilage during the early part of summer.

PART V.—FODDER CORN AND THE SILOS.

It is not too much to say that no single subject closely related to successful agriculture is receiving so much attention from the agricultural press of Canada, or is creating so much discussion at conventions and meetings of farmers, as that of the growing of fodder corn and the making of ensilage. The economical feeding of cattle in stables, and the increasing of the number of cattle which are kept per farm, are matters peculiarly important to the farmers of Ontario and the provinces that lie eastward of it. The economic possibilities of fodder corn and the silo have been mentioned in connection with the fattening of steers for beef and the feeding of cows for milk, in Part II of this report. This brief chapter is presented for the purpose of indicating how the farmers in every district may obtain the largest service from this crop. No specific rule or direction will be found applicable to all soils, districts or seasons; but in all districts, in nearly all soils, and in every season, the corn crop will yield the farmers in the provinces which I have mentioned feeding material for their cattle during the winter, with more profit and advantage than any other single crop which can be grown with as little labour and exhaustion to the fertility of the land, and which can be saved in a cured condition as conveniently.

On one plot on the farm, 68 varieties of corn were planted in rows 3 feet apart—two rows of each—to a length of 90 feet. They were planted on the 21st of May and came up from 1st June to 4th June. They were all cut on 12th September. The average yield, weighed green, was 17 tons and 47 lb. per acre. Particulars on the comparison of varieties for one season only are apt to be rather misleading. Some of the varieties, which gave excellent results on the farm during the two previous years, and did equally well on other parts of the farm in 1891, did not turn out so well on this experimental plot; but, taking the plots on the whole farm, the results as published in Bulletin No. 12, prepared by Prof. Saunders, can be taken as agreeing with the results for the season of 1891. The following short extract is taken from that bulletin:—

"From the results given, it would appear that the Thoroughbred White Flint, Long White Flint, Long Yellow Flint, Yellow Dutton, Large White Flint, Pearce's Prolific and Longfellow, are the most productive of the Flint varieties, ranging in

yield in the order named, and all of them, excepting the Long White Flint, attained a sufficient degree of maturity to make excellent ensilage.

"Among the different sorts of Dent corn, none of which, however, mature as well as the Flint varieties, the following have been found to yield the greatest weight of crop:—Virginia Horse-tooth, Golden Beauty, Golden Dent, Blunt's Prolific, Mammoth Southern Sweet and Red Cob Ensilage.

"Many sorts of sweet corn have given a large yield, the most prolific being Mammoth Sugar, Crosby, Eight-rowed Sugar, Egyptian Sugar and Asylum Sweet. The earliest ripening among these is the Crosby."

On a plot adjoining the one where the 68 varieties were planted, Thoroughbred White Flint was planted in hills 3 feet apart. Two rows of it of an equal length, from the hill method of cultivation, gave at the rate of 4 tons 250 lb. per acre larger yield than two rows under the drill method of cultivation, grown close by. It would not be prudent to base a general conclusion on the result of this one comparison. The method of cultivation in hills seems to permit of the formation of a larger number of ears on the stalks, and a rather earlier maturing of the crop.

From the corn which was grown on the 40-acre plot, already reported upon, some information bearing upon the comparative value of the crop of corn at different stages of maturity has been obtained. The stage of maturity reached has been recorded at the "tasselling," "silking," "early milk," "late milk" and "glazing" stages of growth.

The following Table illustrates the number of ears and nubbins, obtained from planting in rows 3 ft., 4 ft. and 5 ft. apart, with from 3 to 4 grains per lineal foot in the rows:—

TABLE I.

Number of Ears and Nubbins, in rows 100 feet long, on 15th September.

Varieties.	Distance of Rows apart.					
	Three Feet.		Four Feet.		Five Feet.	
	Ears.	Nubbins.	Ears.	Nubbins.	Ears.	Nubbins.
Red Cob.....	20	49	16	95	22	109
Pearce's Prolific.....	102	22	91	20	143	39
Longfellow.....	87	23	121	30	134	34
Thoroughbred White Flint.....	13	51	45	48	63	59
Average.....	50	36	68	48	90	60

While the rows 5 feet apart showed the largest number of ears and nubbins per lineal foot in the rows, the three different methods of planting gave nearly the same numbers each per acre.

Information on the comparative percentages of water, dry matter, yields per acre, dry matter per ton, and dry matter per acre, at the different stages of growth of the four varieties, "Longfellow," "Pearce's Prolific," "Thoroughbred White Flint," and "Red Cob," are found in the following Table:—

TABLE II.

Name of Variety.	Planted.	Tasselling.	Silking.	Early Milk.	Late Milk.	Glazing.
Longfellow.....	May 23.....	Aug. 1 ...	Aug. 11....	Aug. 27....	Sept. 10....	Sept. 21. ...
Pearce's Prolific.....	do 23.....	do 3. .	do 13 .	do 29....	do 12....	do 22....
Thoroughbred White Flint	do 23.....	do 18....	do 25....	Sept. 22....	Oct. 3....	.....
Red Cob.	do 23.....	do 22....	Sept. 2....	Oct. 3....	.....	.....
Per cent of water in green plants		85.73	83.8	80.0	77.8	73.8
do dry matter in green plants..		14.27	16.17	19.95	22.14	26.18
Yield per acre (green weight) Lb.		45,329	48,052	45,806	42,759	43,154
Dry matter, per ton of green corn.. do		285	323	399	443	524
do per acre	do	6,468	7,770	9,138	9,467	11,298

These figures point to a very large increase in the weight of dry matter per acre as the corn approaches the ripe condition.

The analyses of these varieties of corn and the calculations have been made by Mr. F. T. Shutt, Chief Chemist. A more extended analysis of the corns will doubtless appear in his Report for 1891 or 1892.

Corn of the same four varieties was also grown under a method of cultivation with from three to four grains to the lineal foot, in rows of 3 feet, 4 feet and 5 feet apart, respectively, in each case. The following Table shows the average yields per acre which were obtained from the different methods of planting:—

TABLE III.

Weights of four varieties of Indian Corn sown in rows 562 feet long. Four rows of each variety were sown at the distances of 3 feet, 4 feet and 5 feet apart, respectively.

The corn was wilted two days before weighing.

Varieties.	Distance of Rows apart.		
	3 feet.	4 feet.	5 feet.
	Lb.	Lb.	Lb.
Red Cob	2,970	5,330	5,305
Pearce's Prolific	2,568	2,800	4,470
Longfellow.....	2,464	3,430	4,110
Thoroughbred White Flint.....	3,058	4,270	5,190
Average per acre.....	17,857	19,154	18,479

Taking into account the convenience of cultivation, the keeping down of weeds, and the quality of the stalks, it appears that the best results are obtained from planting in rows 3 feet or $3\frac{1}{2}$ feet apart, or, better still, in hills 3 feet apart each way.

The same four varieties of corn were also planted in rows 3 feet apart, at the rates of 2, 4, 6 and 12 grains per lineal foot in each row. The land on which they were grown was so irregular in character that no fair comparison of the yields that may be obtained per acre from these different methods of planting could be made. A brief report of the quality of the ensilage from these methods of planting the corn will be made.

These four varieties of corn were also planted in different combinations (1) two rows of each alternately, and (2) two of the varieties mixed in each row. The following Table shows the results obtained from these investigations:—

TABLE IV.

Method.	Varieties.	Stage of Growth.	Weight per Acre, wilted.	Green Weight per Acre. (Calculated).
			Lb.	Lb.
Two rows alternately.....	Red Cob.....	Silking.....	20,785	29,099
	Longfellow.....	Late milk.....		
Two rows alternately.....	Thoroughbred White Flint..	Early milk.....	24,350	34,090
	Pearce's Prolific.....	Late milk.....		
Seed mixed before planting...	Red Cob.....	Silking.....	23,685	33,159
	Longfellow.....	Late milk.....		
do do	Thoroughbred White Flint..	Early milk.....	23,600	33,040
	Pearce's Prolific.....	Late milk.....		
do do	Thoroughbred White Flint..	Early milk.....	21,745	30,443
	Longfellow.....	Late milk.....		

These five acres were all planted on 23rd May, cut on 12th September, and wilted for two days. The green weights per acre would be about 40 per cent more than the wilted weights.

There does not appear to be any advantage from the planting of different varieties in alternate rows, nor from the mixing of varieties in the same rows.

The heaviest yield on a single acre of corn was one acre of Thoroughbred White Flint, which weighed, after two and a-half days' wilting, 12 tons 900 lb.

Condition of Ensilage.

In silo No. 1 there were 116 tons and 1,259 lb. of mixed varieties, odd plots, and Thoroughbred White Flint. The silo was opened on 10th October. It had been covered with a layer of straw to a depth of about 18 inches. On the top it was spoiled to a depth of about 2 inches, and there was of spoiled and mouldy ensilage 3,333 pounds. The total weight of waste ensilage from this silo, besides that found on the top, was 100 pounds. The corn for this silo was cut in lengths fully 1 inch long. The cattle refused to eat portions of the larger stalks, and also portions of the cobs.

In silo No. 2 there were 95 tons 1,135 lb. It also was covered with a layer of straw. There was spoiled and mouldy ensilage on top for a depth of 2 inches, which weighed 2,694 pounds. The surface area in both silos was 18 feet x 16 feet. Different

lots of corn, according to the method of planting under which they were grown, were put in separate layers. They were divided from each other by a layer of uncut corn stalks.

The first layer was one of ensilage from Red Cob corn, grown in rows 3 feet, 4 feet and 5 feet apart. It had barely reached the "early milk" stage when cut. The sample was in only medium condition as to preservation.

The next layer was that of the four varieties of corn planted in rows 3 feet apart, with 12 grains to the lineal foot in each row. It had been allowed to wilt in the field until it had become rather dry. When it was taken from the silo it was in fairly good condition, but so dry that the meal of the ration would not adhere to it.

The next layer of ensilage was from the four varieties of corn planted in rows 3 feet apart, with 6 grains to the lineal foot in each row. This layer was found to be in an excellent condition as to preservation, but was rather dry from too much wilting.

The fourth layer of corn in this silo was from four varieties of corn planted in rows 3 feet apart, with 4 grains to the lineal foot. The ensilage was in an excellent state of preservation, and was not quite so dry in condition as the two layers above it. This silo was then closed for several weeks. Before this writing (February) it has been reopened. On the top was found a layer of mouldy ensilage, which weighed 2,840 pounds.

The fifth layer of the silo was from the corn of four varieties, planted in rows 3 feet apart, with 2 grains to the lineal foot in each row. This sample was of better quality, and in better condition as to preservation, than the ensilage from the same varieties of corn, planted with 4, 6 and 12 grains to the lineal foot in each row, respectively. The contents of silo No. 2 are being fed at this writing.

Silo No. 3 was constructed on the barn floor. Like the other silos, it is lined inside with two plies of lumber with paper between. The ensilage in it also was covered with straw; and there was of spoiled ensilage on the top a weight of 2,130 pounds. Its area is 15 feet by 15 feet. In a comparison between the condition of the ensilage in this silo, from the three varieties of corn, each grown in rows 3 feet apart, 4 feet apart and 5 feet apart, that from the corn grown in rows 4 feet and 5 feet apart, respectively, was found to be in the best condition. That appeared to be attributable to the fact that the stalks were rather more matured, and, as shown in Table I, carried a larger number of ears each. This silo is located over the stable, on a stout, 3-inch plank floor. A considerable quantity of ensilage was spoiled in the bottom of the silo.

ENSILAGE FROM MIXED CROPS.—Some ensilage was made from a crop of mixed grain (oats, barley and pease)—grown in the summer of 1890. It was put into the bottom of the silo, and about 100 tons of green corn were put on top of it. After the corn was fed, the mixed crop ensilage came out in most excellent condition, and was fed to the cattle and calves as late as May and June.

PEASE ENSILAGE.—In the autumn of 1890 part of a crop of pease was cut, when the pods were filled but not ripe, and put into the silo, to determine the value of such ensilage for the feeding of young pigs. The results are recorded in Table 2, in Part II of this report. The pease ensilage was fairly well preserved; but it gave off a very strong smell of ammonia whenever the surface was disturbed.

RYE ENSILAGE.—A crop of rye from two acres, weighing 7 tons 80 pounds, was put into the silo on 16th July, 1891. Feeding was commenced immediately. It had been allowed to ripen and wilt rather too much; in consequence, a portion of it became quite dry, and was not relished by the cattle. For the making of rye ensilage, the crop should be cut decidedly on the green side, and put into the silo without very much wilting.

CLOVER ENSILAGE.—A quantity of second crop clover was cut and put into the silo. It was put into the silo without being run through a cutting-box; in consequence, it was packed rather loosely and unevenly, with holes and spaces in places. These became slightly mouldy. The bulk of the clover, however, is well preserved and is relished by the cattle.

CONCLUSIONS.—In the making of ensilage from mixed crops, rye or clover, it is desirable to put the crops into the silo in a green and succulent condition. They should be run through a cutting-box, to provide for even distribution and close packing. They must be weighted heavily, either by the application of artificial pressure, or by being put into the bottom of a silo, which will be filled shortly afterwards with corn ensilage. The interstitial spaces between the fine stalks of such crops as oats, pease, rye, clover and grass, hold sufficient air to cause them to mould or decay, unless pressure be applied to expel it. The silo offers a convenient place for the saving of such crops, when the weather is unfavourable, but the lighter yield which can be obtained of them per acre hinders them from being as profitable to grow for ensilage as a crop of corn, wherever that can be grown to the "late milk" or "glazing" stage of maturity.

The experience of the season points to the following conclusions in regard to the growth of corn, the construction of silos, and the filling of the same :

SOIL.—If a field with a loose, warm, loamy soil be convenient to the silo, and can be used, it should be selected in preference to heavy clay, or cold soils. Sod may be ploughed under, shortly before the crop is planted, with the probability of good results from that method of preparation. In all cases, the land should receive a liberal dressing of barnyard manure, be ploughed in the spring, and be harrowed to a state of fine tilth before the corn is planted.

SEED.—The vitality and vigour of growth of the variety of corn which has been selected should be tested. The putting of a few grains in a flower pot in a warm place in the house will enable any farmer to verify for himself these qualities in his seed grain. Frequent disappointment results from neglect in testing the vitality of corn before planting it. As a general rule, the variety which will yield the largest weight per acre, and reach the "glazing" stage of maturity before the frosts come, is the one to select for any district. The "glazing" stage may be otherwise described as the stage when the corn is just past its best condition for boiling in the ear for table use. It is better to err on the side of selecting a variety of a habit of small growth, which certainly will reach the glazing stage, than a variety of large growing habits, which may not come to the desired stage of maturity.

The maximum quantity of seed per acre may be put at 25 pounds; excellent results have been obtained from the planting of 18 to 20 pounds per acre.

MANNER OF PLANTING.—Planting in hills, 3 feet apart, both ways, appears to afford the corn a better chance for maturing early, and for producing a large number of ears. A hand corn-planter may be used to dibble in the corn. From 4 to 6 grains per hill should be planted. Corn may also be planted by the use of a hoe, and covered to a depth of at least 2 inches. In that case the foot should be pressed on the soil over the corn. For small areas, furrows 3 inches deep may be ploughed 3 feet apart. A marker (which may be constructed by driving wooden pins or harrow-teeth through a plank at distances of 3 feet from each other), may be drawn across the furrows. From 4 to 6 grains may be dropped at the points of intersection. They can be covered quickly and well by the planter's foot. For large areas, a single or double horse corn-planter may be used with advantage. The planting of corn in hills affords an opportunity for the effective cleaning of land from weeds, without much hand labour, by permitting cultivation in both directions.

If planted in rows, the rows should be from 3 to 3½ feet apart, and the grains may be put in at rates of 3 to 4 grains per lineal foot. For small plots, a convenient method is to open a furrow with a plough; the seed may be dropped in at the rate already mentioned, when it may be covered. For large areas, a single or double corn-planter will be found a serviceable implement.

DEPTH.—Corn seed should be planted to a depth of from 2 to 3 inches.

CULTIVATION.—In cases where a crust forms on the land, before or immediately after the corn comes through, a light harrowing will prove very helpful to the vigour and growth of the crop. Harrowing of the corn until it is 6 inches high will increase the rapidity of growth and the yield per acre. The cultivation between the rows, when the plants are small, should be close to them, and deep. When the

plants have grown to a height of more than 3 feet the cultivation should be more distant and shallow, in order to avoid injuring the side roots of the plants.

SILOS.—The main features that are required in a silo are strength to resist the outward pressure of its contents, exclusion of air by the construction of the sides, and a fair depth of holding capacity, in order to permit the ensilage to settle into a compact mass. Sufficient strength of sides can be obtained in most silos by the use of 2 x 10-inch or 2 x 12-inch studs, placed from 18 inches to 2 feet apart. A clay or earthen floor is most economical, and as good as any that can be put in. The inside of the walls of the silo may be finished by a single lining of lumber, nailed to the studs horizontally. The lumber should be tongued and grooved and dressed on the inside. If each alternate board be allowed to extend at the corners, so as to make a lock-joint, that will give additional strength to the structure. The corners of the silo, on the inside, should be filled by the use of a board or plank 10 inches wide, set on end. The triangular space behind it should be filled with sand or sawdust. I consider that studs 2 x 10-inch or 2 x 12-inch, with one ply of sound tongued and grooved lumber, nailed horizontally on the inside, are sufficient for an efficient preservation of the ensilage. Additions to that method of construction may be advantageous, in a few cases, for convenience. If a portion of the ensilage around the sides becomes frozen, that is more an inconvenience than a loss. It should be mixed with the warm ensilage, from the middle of the silo, before it is offered or fed to the cattle.

CUTTING THE CORN.—The cutting of fodder corn by hand has been found the most economical of the methods which we have tried. If the crop be allowed to wilt in the fields, until it loses from 15 to 20 per cent of its moisture, a pleasant aromatic odour will be developed, which leaves the ensilage with a more agreeable smell. From an examination which was conducted with two tons of corn, left to wilt in the fields, in small heaps of about twenty-five or thirty stalks each, it was found that, with two days' exposure during bright sunshiny weather, the corn lost 28·5 per cent of its weight; and with four days' exposure, 36·8 per cent. After twenty-eight days standing in "stooks" it had lost 52 per cent; and after five months it had lost 58·8 per cent of its original green weight.

FILLING THE SILO.—It is advantageous to cut into the silo those varieties of corn which have thick stalks, in lengths of from $\frac{1}{2}$ to $\frac{3}{4}$ of an inch. Cut into such lengths there is no waste, and the stalks and cobs are all eaten up clean by the animals. Provision should be made for a fairly even distribution of the corn in the silo, while it is being filled, and for tramping the sides and corners most thoroughly. The weighting of the corn does not appear to be necessary or advantageous. After the silo is filled the surface should be levelled and thoroughly tramped; and after the lapse of *not more than one day* it should be covered to a depth of 6 inches with cut straw. If a foot of cut straw be put on top of that a few days later, probably no loss at all from waste ensilage will be found on the opening of the silo for feeding. The feeding should be effected from the top of the ensilage, and a quantity of the exposed ensilage should be raked from the top daily.

ANNUAL REPORT OF THE HORTICULTURIST.

(JOHN CRAIG.)

To WM. SAUNDERS, Esq.,
Director Dominion Experimental Farms,
Ottawa.

SIR,—I have the honour to submit herewith a report of the work carried on in the horticultural department, for the year 1891.

The season while on the whole unfavourable to nursery work and transplanting operations, will long be remembered throughout the Dominion as a year marked by a fair crop of fruit of first quality, the dryness of early spring being unfavourable to the development of apple scab and other fungous diseases. The unusual heat of September had the effect of hastening the maturity of late summer and autumn varieties, which lead to a lowering of market prices, by the consequent haste on the part of growers to get rid of this class of fruit. To provide against such contingencies, more attention will need to be paid by growers to the production of a commodity of higher quality, placed upon the market in the neatest, most convenient and attractive way. This in part may be accomplished by closer attention being paid to cultivation and spraying of trees, thinning, grading and packing of fruit; and as our fruit interests develop, cold storage will undoubtedly play an important part in the profitable disposal of the different orchard products.

In drawing up this report, which has been done in as concise and brief a form as possible consistent with clearness, I have followed the plan adopted last year—that of dividing the work and placing it under different heads.

I. LARGE FRUITS.—Gives notes on orchard culture with special reference to the needs of northern planters, together with suggestions, preventive and remedial, for the treatment of trees injured by mice or rabbits during winter. Particular attention has been given during the year to collecting information in regard to the most valuable varieties of the Russian apples, so far as experience up to this point can guide. The varieties mentioned have been carefully selected, and are commended to the attention of northern orchardists.

II. SMALL FRUITS.—Under this head will be found some conclusions reached in regard to methods of planting; facts concerning winter protection, and relative profitability of varieties. Considerable space is given to grapes, covering tabular information, as to time of colouring and ripening; also descriptive notes of varieties.

III. VEGETABLES.—Giving the names and descriptions of varieties in the following classes, which succeeded best in the experimental plots: Beets, cabbage, cauliflower, celery, pease, peppers and tomatoes; also some results from the use of fertilizers upon the latter.

IV. FORESTRY.—A report upon the work of distributing young seedlings, and tree seeds to the prairie provinces.

V. FUNGICIDES.—Giving results of experiments in spraying to prevent "apple scab," "grape" and "gooseberry mildew."

ACKNOWLEDGEMENTS.

I beg gratefully to acknowledge the following donations:—

Mr. W. W. Dunlop, Montreal—Small fruit plants, plum trees and scions; seeds of East India plants.

Stayman & Black, Leavenworth, Kans.—Ten new varieties of grapes for trial, six Stayman raspberry plants.

W. P. Rupert & Son, Seneca, N.Y.—Two trees of Vermont Beauty Pear.

Mr. W. H. Phillips, Staunton, Ind.—One dozen Phillips' No. 1 strawberry.
 Mr. A. M. Smith, St. Catharines, Ont.—Smith's Giant Raspberry.
 Mr. W. W. Hilborn, Leamington, Ont.—Greenfield Red Currant.
 Rev. Robt. Hamilton, Grenville, Que.—Apple scions.
 Fitz-james Pear Co., Himrods, N.Y.—Two Fitz-james pear trees.
 Mr. R. B. White, Ottawa.—Seedling plums.
 Mr. J. P. Cockburn, Gravenhurst, Ont.—Seeds and roots of Witch-hazel and Muskoka June berries.
 Chase Bros. & Co., Rochester, N.Y.—Two trees of North Star apple.
 Prof. J. L. Budd, Ames, Ia.—Scions of Russian apples and pears.
 Linus Woolverton, Esq., M.A., Grimsby, Ont.—Small fruit plants, and much valuable assistance in various lines.

I have also to acknowledge with thanks valuable assistance from Mr. Wm. Craig, jun., and Mr. J. M. Fisk, of Abbotsford, Que., in conducting experiments for the treatment of "apple scab."

MEETINGS ATTENDED.

During the winter I had the opportunity of meeting farmers at institute work in various places throughout the Province of Ontario, and was pleased to note the growing interest in fruit culture, manifested by their efforts to gain all information possible in regard to newer varieties and improved methods of cultivation.

By courtesy of the Hon. Minister of Agriculture I had the privilege of attending the twenty-third biennial session of the American Pomological Society, held in Washington last December. The work of revising fruit lists for the whole union, and passing on the continuous stream of new varieties being pressed upon the public, are among the functions of this society.

Three days were spent very profitably in session with the Ontario Fruit Growers' Association, at their winter meeting in Hamilton in December. The important part this society is taking in furthering the fruit interests of the Dominion, as well as the Province of Ontario, is very meritorious, and should receive the hearty co-operation of all interested in fruit-growing, wherever located.

I have the honour to be, Sir,

Your obedient servant,

JOHN CRAIG,
Horticulturist.

I.—LARGE FRUITS.

APPLES.

The winter of 1890-91, though not remarkably severe on the whole, was yet unusually trying on trees and plants having terminal wood not well ripened, particularly young nursery stock. The sudden fall of temperature in the latter half of December, 1890, to 15° below zero, and this at a time when there was no protecting blanket of snow, caused root-killing to a considerable extent in the case of one and two-year-old nursery stock, especially in light soils. In many instances, with root grafts, the lower root section was entirely killed; the young tree when not killed, being supported by the upper and hardier roots emitted from the scion. This state of affairs was particularly noticeable with many of the Russian varieties in nursery here. As a consequence, quite a percentage of one-year-olds was killed. Nursery stock on heavier soil did not suffer to the same extent.

Planting Season.—With practically no rainfall during the month of May and up to the last half of June, the spring season, with its drought and cold winds, was extremely unfavourable to planting and transplanting of all kinds, as well as to the best returns from small fruit plantations. The heavy rains of July and August

induced a later growth than usual in trees and shrubs, more especially affecting root grafts and young nursery stock not previously well rooted.

Cultivation.—The same system of cultivation in orchard management has been continued as that outlined in my report for 1890.

INJURIES FROM MICE.

Owing to the great amount of damage sustained by young orchards throughout the country during the past winter, many questions have come in relating to the best and cheapest means of repelling the attacks of field mice. As varying conditions often call for different treatment, the following preventives and remedies are suggested:—

Preventives.—1. Remove all rubbish that may lie about the orchard affording hiding places for mice.

2. Tramp the snow firmly about the trees after each snow storm.

3. In the autumn, before the ground freezes, bank each tree with earth to the height of from 12 to 15 inches. This was done the past season to the 1,700 trees in the orchard of the Central Experimental Farm, at a cost of .53 cents per tree, or a little over a half of 1 cent.

4. Tarred paper, which has been allowed to dry for a few days after being cut into squares of the required size, is also very serviceable. It may be fastened round the stem of the tree with twine, or may be held in place by a single carpet tack, pressed through the over-lapping edges into the bark.

Washes.—5. Portland cement of the consistency of common paint, to which is added Paris green in the proportion of 3 or 4 oz. to 3 gallons of the former. Apply with a brush, as a paint.

6. Slake 1 peck of fresh lime and make to the consistency of paint, adding half a gallon of soft soap, half a gallon crude carbolic acid, and 3 or 4 pounds of sulphur.

Remedial.—1. In all cases with a sharp knife pare the wound smoothly. If the wound is 18 inches or more from the ground, cover completely with a thin coating of grafting wax, and wrap with a cloth to prevent wax melting, and to assist in excluding the air.

2. When the wound is near the base of the tree, cover with grafting wax or green cow-dung, held in place by rough sacking; or the tree may be banked with earth to a point above the wound, which is preferable.

The main idea is to prevent evaporation by excluding the air, and keeping the tissues in a normally moist condition. Under such circumstances, when taken in time, trees will frequently recover, though completely girdled.

I wish to again impress the importance of keeping the bark on the stems and branches of the young trees in a clean and healthy condition, by the application of alkaline washes. Apart from preventing injury from scale insects, such washes repel the inroads of borers to an extent not generally appreciated. In looking through an orchard of 100 acres, chiefly made up of Duchess, the property of Messrs. Bardwell and Haviland, of Fort Dodge, Iowa, I could not, after the most careful examination, find a single tree injured by borer, or affected with sun-scald. This result Mr. Haviland attributes entirely to the systematic and regular application of such a wash as is recommended in my report of last year. The cost will vary from 30 to 50 cents per hundred trees for the season.

Low Heads.—Another point which I wish to emphasize in connection with orcharding at the north is the importance of heading the trees low and growing somewhat in bush form. The experience of Messrs. Bedford and Mackay, of Brandon and Indian Head, bears strong and unmistakable evidence on this point—a larger percentage in every case of standards of the same varieties failing than those planted as one-year-olds and allowed to branch low. In climates subject to sudden extremes, long-unprotected stems are very liable to suffer injury from sun-scald and bark-bursting. Again, the low head, from its proximity to the ground, assists in collecting snow, which does valuable service to the object covered in protecting it from extremes of

temperature. To intending planters in northern Ontario and Manitoba I would say, purchase one-year-old root-grafted trees, selecting varieties as hardy or hardier than Duchess, cut them back and set in nursery row, for two years, then set out in permanent orchard situation, and train in low bush form. More lasting benefit will be gained from this class of tree than from the much finer looking standards, which may have been forced in nursery.

NEW VARIETIES.

Among the many new varieties which are being constantly heralded from different points, it is often difficult to discriminate between the useful and useless. Of the many aspirants for public recognition I think none more worthy than that known as "McMahon's White." The fruit of this was exhibited at the last meeting of the American Pomological Society in Washington, grown both in Wisconsin and Minnesota. A large oblong waxy yellow apple, with a light blush on one side, flesh white, juicy and of fair quality. A dozen trees of this on the experimental farm are among the most vigorous and healthy in orchard. Mr. A. L. Hatch, of Ithaca, Wisconsin, writes me as follows: "A seedling from Alexander introduced here about 20 years ago, and is proving more valuable than any other. It will grow and bear apples 'next year' when other varieties are tired out. I had 80 barrels of it this year—sold higher in Chicago and St. Paul than any other of its season."

STANDARD VARIETIES ADDED, 1891.

Arkansas.	Kinnaird's Seedling.
do Black.	Lankford do
do Beauty.	Mason's Orange.
Crawford.	Nero.
Clayton.	Osceola.
Coffelt Beauty.	Rainbow.
Cullin's Keeper.	Rebel.
Dickinson.	Shackelford.
Dr. Walker.	Spencer.
Early Colton.	Stuart's Golden.
Family Favourite.	York Imperial.
Huntsman.	North Star.
Ivanhoe.	Gano.

As the majority of the varieties mentioned above are from points considerably to the south of Ottawa, it is not expected that they will in all cases prove hardy, but opportunities are not wanting whereby their usefulness for southern Ontario can be determined.

In the accompanying tabular statement a classification of varieties now in the standard orchard is made on the basis of relative immunity from injury, during the winter of 1890-91. Those in column 2 "slightly injured," lost in most cases only a few inches of the terminal growth. In column 3 the injury was more severe, and was often accompanied by sun-scald and stem injury. In column 4 will be found varieties which seem to have died from unadaptability to soil and climate—the latter particularly—and which in this and similar localities should only be tried as top-grafts in a limited way, if at all.

TABLE showing effect of Winter of 1890-91 on Standard Apple Orchard.

1. Uninjured.	2. Slightly Injured.	3. Considerably Injured.	4. Killed.
Baxter.	American Beauty.	Baldwin (American). ...	Cooper's Market.
Ben Davis.	Belle de Boskoop.	Bottle Greening.	King (3 out of 5).
Bombarger.	Brewington.	Cranberry Pippin.	Lady Henniker.
Canada Baldwin.	Benoni.	Early Harvest.	Nonpareil.
Duke of Connaught.	Beauty of the World.	Gravenstein.	Perry Russet.
Duchess.	Chenango Strawberry.	Hurlbut.	R. I. Greening.
Fameuse.	Dominie.	Missouri Pippin.	Red Russet.
Fanny.	Fallawater.	Nodhead.	Swayzie Pomme-grise.
Golden Russet.	Lord Suffield.	Rome Beauty.	Winter Bough.
Gideon.	Magog Red Streak.	Shannon.	
Giant Swaar.	Northern Spy.	Sweet Bough.	
Haas.	Primate.	Sutton's Beauty.	
Keswick Codlin.	Ribston Pippin.	Utter's Red.	
Lawver.	Rolfe.	Vandevere.	
McMahon White.	Red Beitigheimer.	Wagner.	
McIntosh Red.	Roxbury Russet.	Wine Sap.	
Mann.	Stump.	Winter Pippin.	
Orange Winter.	Seek-no-further.		
Princess Louise.	Sharpe's Russet.		
Pomme Grise.	Spitzenberg.		
Peach.	Sops of Wine.		
Plumb's Cider.	Wolf River.		
Red Astrachan.			
Richards' Graft.			
St. Lawrence.			
Snyder.			
Shiawassie Beauty.			
Saxton.			
Scott's Winter.			
Salome.			
Talman's Sweet.			
Wealthy.			
Walbridge.			
Winter Duchess.			
Winter St. Lawrence.			
McMahon's White.			

RUSSIAN APPLES.

The work of testing the merits and studying the habits of this race of apples has been carried on during the year, as much as opportunity and time afforded. To more rapidly advance this line of investigation, a visit by the writer was made last autumn, to the western States, by instruction of the Honourable the Minister of Agriculture. Some of the information gained from this visit, as well as the combined experience of the most careful experimenters are here given, in such form as may serve as a guide to propagators.

Conclusions reached are (1) that the northern limits of apple culture can be materially extended by planting the hardiest of these varieties.

2. That all fruit-growing districts of Canada may be benefited by adding a judicious selection of the best kinds.

3. That among them are many valuable summer varieties.

4. That experience seems to indicate that among them are winter apples of fair quality and superior hardness.

5. That in the milder portions of Ontario, these winter apples are not yet sufficiently tested to be recommended for more than trial, in a limited way.

6. That nursery men supplying the needs of northern planters should propagate varieties mentioned hereafter, taking special care to send them out true to name.

SUMMER.

ANISOVKA (*No. 185 Dept.*)—A large fine looking apple of the Duchess type, but about two weeks later. The tree is extremely hardy, and is recommended for trial where the Duchess fails. It is spoken of in Minnesota as an early fall apple of great promise.

YELLOW TRANSPARENT (*No. 334 Dept.*)—This has now become so widely and so favourably known, that it is almost superfluous to insert it in this list. It has been mentioned as one of the leading apples in almost every list received, from Minnesota to Vermont. Its weak point in the western States is its liability to suffer from blight. Of its hardness, quality of fruit, and early heavy-bearing habits, there is no question; in fact, this latter characteristic has been the means of bringing it thus rapidly before the public. Experience teaches that this variety needs high cultivation and careful thinning of fruit, in order to maintain a product of first quality, and perfect vigour of tree.

BRESKOVKA (*152 M.*)—One of the Moscow importation by Prof. Budd. This fruited as a top graft last year in the Niagara district, but was past its season when I saw it early in September; and in speaking of it, I do so principally on the recommendation of others with whom it has fruited. The tree is hardy at Ottawa, as it is in Iowa and Minnesota. As a dessert fruit, a week or two later than Yellow Transparent, it is highly spoken of.

ENGLISH BOROVINKA (*9 M.*)—Imported by Prof. Budd. Fruited at Abbotsford the past two years. Medium to large; flat conical; yellow ground; nearly covered with splashes and red stripes. Calyx partly open; basin large, wrinkled; stem three-quarters to an inch long; cavity narrow, deep and russeted. Flesh white, with sometimes a purplish tinge, sub-acid, fair quality. Season, September; keeps till November. A handsome early fall apple. Hardy in Minnesota. This is quite different from Borovinka, No. 245 of the Dept., which is not included in this list, as its place seems to be filled by Anisovka (*No. 185 Dept.*)

CHARLAMOFF (*262 Dept.*)—A hardy tree, of which favourable reports came from Minnesota, Iowa and Wisconsin. It is also doing well in various parts of the Province of Quebec, and at Ottawa. Fruit large, rather handsome; of the Duchess type in appearance, quality and season.

WHITE NALIV (*No. 157 Dept.*)—This fruit answers the description of Dr. Regel, as translated by the late Chas. Gibb. He says: "It stands our severest winters at St. Petersburg, and bears every year; at any rate, *heavily* every second year." Mr. Tuttle says: "A most valuable tree in orchard, hardy and free from blight." Good reports come from various points in Iowa as well. Fruit about medium size, yellow ground, sometimes quite highly coloured; fair quality. Ripens here about the middle of August.

BLUSHED CALVILLE (*22 M.*)—Hardy at Ottawa. Recommended from Minnesota and Iowa as a summer apple; a little later than Yellow Transparent, and a better tree. Mr. Peterson, of Minnesota, says: "Hardy, free from blight; better than Duchess."

LUBSK REINETTE (*444 Dep.*)—"Is a summer apple, having juicy white flesh; fair to good in quality; fine-grained and good size; round in shape; suffused with carmine red over a white waxy ground; far more beautiful than any other apple I ever saw of any kind. For two seasons I sent them in barrels to St. Paul, Minn., and they sold at a higher price than any other kind and more were asked for each time. The tree is as good a grower as Duchess, not very fine in nursery, but good in orchard, though in some instances it blights slightly, not more, however, than Fameuse; also has scabbed, but very little when compared to Fameuse. For an early, fancy, high-priced apple, for a gilt-edged market, it is sure to be satisfactory and liked; it can be well grown in your climate, where the summer heat is probably not so intense as here."—A. L. Hatch, Ithaca, Wis. This has not fruited in Canada that I am aware of, but the tree is doing well at Ottawa and Abbotsford, Que., and should be more generally tested.

THALER (*No. 342 Dep.*)—This is thought by a few growers to be identical with Yellow Transparent, Mr. Tuttle, of Wisconsin, claiming the fruit to be the same, but the tree less liable to blight. Mr. Speer, of Iowa, thinks the tree more productive, but we in Canada have no fault to find with the Yellow Transparent in that respect. In my opinion, for Canadian planters, one is as good as the other, the fruit being so nearly alike, and the trees being equally hardy.

LIVLAND RASPBERRY (*No. 340 Dep.*)—This bears an attractive-looking fruit of fair quality, ripening about 1st September. The tree ranks with Wealthy in hardiness, but is not as thrifty in growth. It has been recommended in Wisconsin, and succeeds well in the Province of Quebec.

FALL.

WHITE PIGEON (*317 Dep.*)—Tree undoubtedly hardy. The wood of this variety is among the brightest and clearest in a string of nearly two hundred specimens, made up of cross sections of the stems of three-year-old nursery trees, taken at the critical point—the terminal bud of the first year's growth—presented to the Iowa Horticultural Society, after a recent test winter, by Mr. W. C. Haviland, of Fort Dodge. Mr. Webster, of Vermont, briefly describes the fruit as “a good substitute for the banana.” Emphatic statements come from Minnesota in regard to its hardiness, and Mr. R. W. Shepherd has the following to say in regard to quality:—“The quality is best. It is the best dessert Russian I have yet seen or tasted; flesh firm and juicy, with delicious pear-like flavour. I consider White Pigeon equal to Early Joe in quality—than which nothing can be better; being a hardy tree, whereas Early Joe is only half hardy, it is the best fall dessert apple for this province for home use.”

JUICY NALIV (*544 Dep.*)—What I have seen of this tree and fruit, has impressed me with the belief that it will prove valuable, along northern limits of fruit-growing in Canada. Messrs. Perry, of Beaver Dam, Wis., and R. P. Speer, of Cedar Falls, Ia., both speak highly of this as a hardy fall variety. Mr. Speer classes it with those of the Hibernial type. Fruit, medium to large, handsomely coloured; fair quality. At Ottawa the tree is a vigorous upright grower, quite hardy.

WHITE PELIKANOFF (*980 Dep.*)—This has been favourably noticed by several growers in Minnesota, on account of hardiness and almost entire freedom from blight. The fruit, as I saw it, is about the size of Duchess and better in quality, keeping into early winter.

GOLDEN WHITE (*978 Dep.*)—This has already been somewhat widely disseminated in the Province of Quebec, and last year was among the fruits distributed by the Fruit Growers' Association of Ontario. Specimens of the fruit received from Mr. R. Brodie, of St. Henri de Montréal, were large to very large, oblong ribbed and slightly irregular; colour, a rich yellow ground, covered with carmine splashings towards the stem end; calyx open, basin small, in some specimens almost absent; flesh white, crisp, tender and juicy; sub-acid; very good. Season, September and October. At Abbotsford, Que., it has shown some tendency to scab and crack.

ZOLOTOREFF (*275 Dep.*)—This may be classed with Titovka, 2 Dept. 430, Ribbed Naliv, 285, and Basil the Great, 971, all large coarse fall apples which seem to be intermediate between the Duchess and Alexander families. The trees are all hardy, and were among the first to fruit at Abbotsford. The Zolotoreff tree has given greatest satisfaction and is recommended for the colder districts. Described in the report for 1890.

SWITZER (*304 Dep.*)—“Has made larger full-branched trees than any other Russian. Three trees about 18 years old yielded 40 bushels for me this last season, and were very good apples; somewhat inclined to scab, but is one of the best of all the Russians where quantity is an object, and if it can be grown free from scab, as I think it can be with you. Late summer here.”—A. L. Hatch, Wis.

“A fall apple, which may possibly keep as long as Fameuse under favourable circumstances. Has fruited at Como for the last four or five seasons. It is of Fameuse

type and quality. It must become a favorite dessert apple, as its appearance and excellent quality place it in the front rank. The aromatic odour of the Switzer when ripe is more powerful than any other apple I know of. The tree is a heavy bearer, but its weak point is a tendency to drop the fruit considerably some seasons. Taking it altogether, the Switzer is a great acquisition, and could no doubt be grown successfully in unfavourable localities where the Fameuse does not succeed."—R. W. Shepherd. I do not think we can rank this among the hardiest, as at Mr. Haviland's place, northern Iowa, the wood was badly coloured; also at points in Minnesota it did not exhibit the same power to resist extremes as did many others. Yet, where Wealthy succeeds, I think it can be safely planted. In regard to quality, it is not overrated by Messrs. Hatch and Shepherd.

WINTER.

OSTREKOFF (4 m.)—One of Prof. Budd's importation from Moscow. A perfect tree at Ottawa, giving a few specimens of fruit last year—the second from planting. The tree is doing well in Minnesota and Iowa, where it is looked upon as a decided acquisition. The fruit is medium to large, round waxy yellow, with bright blush on sunny side, flesh white, sub-acid, juicy, melting, good. Mr. Peterson, of Minn., says "keeps till March." I was very much pleased with this as seen in barrels at the Iowa Agricultural College last summer, and was impressed with the idea that it would make an attractive and saleable market apple.

OSTREKOFF (472 Dep.)—Is also a winter apple and a hardy tree. I have been unable to compare the fruit of these two, but Mr. Peterson, of Minnesota, can see no difference between this and Lieby, or Hibernial.

ANTONOVKA (236 Dep. 26 m.)—Although received from several sources, all appear true to name. This has proved valuable in the west, only in locations more or less free from blight. The tree is unquestionably hardy, and I have every hope of it being very serviceable at the north. Fruit medium to large, nearly round, yellow, without much colour; flesh white, breaking, briskly acid, but pleasant. I should like to see it widely tested. This will prove fall and early winter in many sections.

HIBERNAL (378 Dep.)—This has been fruiting for a number of years over wide areas. Two points are thoroughly established: 1. That it is one of the hardiest of all the Russian apples. 2. That it has no value as a dessert fruit, but as winter cooking apple is very useful. In the many reports which I have received, in no case has this or Lieby, which is almost identical, been omitted from the autumn or winter list. Growers in Iowa, Minnesota, Dakota, Montana, Wisconsin, Vermont and the Province of Quebec, all testify to its value for the north. In districts where Wealthy, Pewaukee and Scott's Winter succeed, there is little room for apples of this quality, except as stocks for top grafting; but for points farther north its value has become generally recognized.

LONGFIELD (161 Dep.)—Rather better known than the majority of the Russians, on account of its habit of bearing young and heavily. The tree is very distinctive in appearance, a poor grower in nursery, shaping itself in orchard into a conical form, with the lower branches quite drooping; leaves silvery on the lower side. The size of the fruit depends much on care and cultivation; being a tremendous annual bearer, if not well manured and thinned, the fruit soon deteriorates and becomes small. Quality is first-class. For home use this should be encouraged. Ordinarily its season is that of Fameuse, or a little later in the Province of Quebec.

RED REINETTE (316 Dep.)—This tree is reported by Mr. Hatch, of Wisconsin, as not being very hardy, yet it is succeeding well with Mr. Somerville of Minnesota, and Mr. Haviland, of Iowa. Hardy, at Ottawa and at various points where tried in Quebec. Fruit medium to large, round, approaching conical in form; green ground, covered on one side with a dark red blush; texture of flesh very firm, very pleasant sub-acid, a good keeper.

CROSS (413 Dep.)—This is a fruit of medium size, flat, sometimes ribbed; green, with light red splashes on the sunny side; calyx closed, basin irregular, wrinkled;

stem thick, set in a deep wide cavity; flesh white, mild, sub-acid; season, early winter. Tree a strong grower, perfectly hardy here and at Abbotsford. It is succeeding admirably in Minnesota and Northern Iowa.

GIPSEY (1,227 *Dep.*)—This was noted in the report of last year, and is repeated here to emphasize its value. About the season of Fameuse.

SILKEN LEAF (327 *Dep.*, 75 *m.*)—A very hardy tree, bearing large, coarse-fleshed apples, of value only for culinary purposes. As in the case of Hibernial, the planting of this should be confined exclusively to extreme northern situations. Valuable as a top-working stock.

ARABKA (257 *Dep.* Imported by Elwanger & Barry, Rochester, N.Y.)—This was also mentioned in my report for 1890, and should have a place with planters in northern Ontario. (No. 315 *Dep.* Herren, as fruited at Abbotsford, seems to be identical with the above.)

ROYAL TABLE (5 *m.*)—See report for 1890.

ZUSOFF (585 *Dep.*)—Prof. Budd reports this not quite hardy at Ames, but Messrs. Somerville and Harris, of Minnesota, pronounce it satisfactory, and Mr. Tuttle, of Wisconsin, gives it three stars, and says it is equal to Fameuse in quality. It is certainly one of the handsomest large winter apples I have seen. I cannot speak of its hardiness at Ottawa, as it was only added to the collection last year. I feel justified in saying, however, that where the Fameuse is hardy it can be safely planted. Fruit large, round and symmetrical, almost entirely covered with a rich dark red colour; flesh coarse, but not as stringy as Alexander; a pleasant acid. Season, mid-winter.

PLUMS.

A number of varieties of the *Prunus Americana* type (the De Sota class) fruited the past season, although planted only the previous year. While these cannot compete with the finer varieties of *P. Domestica* as shipping and market fruits, yet they will, in the north, fill a very important place for home use, being excellent for canning and preserving. Some of them, for example, Forest Garden, Wyant and Yosemite Purple, need annual shortening-in to keep the branches from becoming too long and unmanageable. Another important point towards attaining the best results with this class is the mixing of varieties in the orchard, for the purpose of more complete fertilization. Some kinds, Speer and Miner, for example, are said to be imperfect self-fertilizers and need a supply of pollen from other varieties in order to perfect their fruit. Very few belonging to the class *P. Domestica* came through the winter without greater or less injury, the condition of varieties in a general way corresponding with statements made in the report for 1890.

PEARS.

The varieties of Russian pears noted in last year's report have grown very vigorously the past year, and their dark-green glossy foliage has attracted the attention of many visitors while looking over the farm.

The question of hardiness seems to be, in the case of a large number of varieties, quite assured, but I do not anticipate that the fruit in any case will approach in quality Bartlett, or even Flemish Beauty. *Bessemianka* and *Gakovka* gave again this year a few specimens of fruit; in size medium to small, below medium in quality, showing too much tendency to drop prematurely and also to decay at the core—even before falling—without being apparently ripe. This, especially, was the case with *Bessemianka*. Dr. Hoskins, of Vermont, however speaks very favourably of the quality of this variety as fruited on his grounds. As it has been imported from several points in Russia, it is quite probable that variations will be found to exist, and time is needed to bring out the best.

CHERRIES.

An abundant show of blossoms presaged a heavy crop of cherries, but a severe frost followed by cold winds prevented fertilization, so that many varieties new to this locality did not fruit at Ottawa as was expected. At Abbotsford, however, the crop was only partially destroyed and an opportunity of summing up and comparing the notes of previous years was enjoyed. These results and conclusions, together with cuts of promising varieties, are embodied in a bulletin now in course of preparation.

The varieties under trial in this division of large fruits seem destined to be of great service in extending the profitable cultivation of cherries considerably northward. In order to accomplish this object successfully one or two important points must be remembered: 1. They must be headed low and trained somewhat in bush form; 2. Plant deeply in well-drained soil, and throw a mound of earth about the base of the tree in the fall to protect the roots.

II.—SMALL FRUITS.

GRAPES.

In the older grape-growing districts the crop of the past year was an abundant one. In the Ottawa valley, which has quite a local reputation for the excellence of this fruit, the season was not favourable. Unusually warm weather in early spring induced growers to uncover their vines earlier than usual; cold, frosty weather following resulted in the killing of the unfolding buds and destroying the possibility of the year's crop of fruit. Those who waited till warm weather was assured, were rewarded by a full crop, although the unusually cool weather during June, July and August retarded ripening very much, yet the abnormally hot September more than counterbalanced the low temperature of early summer, and a much larger proportion of the varieties fruiting, ripened this year than last, though nearly ten days late on the whole. On the night of 14th of August a hail storm, local in extent, but very severe while it lasted, passed over the farm, doing much damage to vines and tender plants. It was estimated that 25 per cent of the fruit was lost from this cause. The leaves, where exposed, were completely riddled and the berries split open. Varieties trained to trellises suffered more than those on single stakes. Mildew under the control of ammoniacal copper carbonate did not appear in the farm vineyard to any appreciable extent, but anthracnose "Bird's-eye rot" (*sphaceloma ampelinum*) attacked a few varieties very persistently, and did not yield to the above remedy. This disease attacks the wood as well as the fruit, giving the former a blotched and spotted appearance, not unlike raspberry cane anthracnose. Some experimenters have obtained best results from the use of a strong solution of copper sulphate and in some cases iron sulphate (1 lb. to 10 of water) with which the canes are washed before tying to the trellis in the spring, followed by the application of Bordeaux mixture. The danger of vines being killed in winter when planted in light soils in exposed positions, and without a heavy protecting mantle of snow, has been strongly impressed upon me the past season, when noting the numerous fatalities resulting from the planting of vines in such situations, without taking proper precautions. Where the winter cold is extreme, it is necessary not only to cover with earth, but also to provide for a liberal covering of snow by placing wind-breaks of boards at intervals, or ever-green boughs to collect and hold the snow. This care is most essential when the vine is young and not fully established.

The following tabular statement shows the dates of colouring, ripening and gathering of each variety, fruited the past season, given in order of maturity:

Black Grapes.

Name.	Date of Colouring.	Date of Ripening.	Date of Gathering.
Florence.	September 4. . .	September 9. . .	September 18.
Champion.	do 4. . .	do 15. . .	do 23.
Moore's Early. . .	do 4. . .	do 18. . .	do 30.
Janesville.	do 4. . .	do 18. . .	October 1.
Canada.	do 8. . .	do 18. . .	do 5.
Early Victor.	do 14. . .	do 20. . .	September 30.
Eumelan.	do 14. . .	do 21. . .	October 7.
Telegraph.	do 4. . .	do 21. . .	do 3.
Cottage.	do 14. . .	do 22. . .	September 30.
Potter.	do 6. . .	do 24. . .	October 1.
Rogers No. 17. . .	do 12. . .	do 25. . .	September 30.
do 36. . .	do 12. . .	do 25. . .	do 30.
Brant.	do 14. . .	do 25. . .	October 5.
Worden.	do 14. . .	do 25. . .	do 1.
Eaton.	September 14. . .	do 26. . .	do 1.
Black Elvira.	do 14. . .	do 26. . .	do 1.
Peabody.	do 9. . .	do 26. . .	do 1.
Herbert.	do 20. . .	do 26. . .	do 2.
Merrimac.	do 8. . .	do 26. . .	do 5.
Barry.	do 15. . .	do 26. . .	do 5.
Conqueror.	do 14. . .	do 26. . .	do 2.
Montefiore.	do 21. . .	do 26. . .	do 5.
Creveling.	do 14. . .	do 26. . .	do 5.
Wilder.	do 14. . .	do 26. . .	September 30.
Chase Bros. (New). .	do 18. . .	do 26. . .	October 2.
Belvidere.	do 12. . .	do 28. . .	do 2.
Ives.	do 18. . .	do 28. . .	do 2.
Monroe.	do 14. . .	do 30. . .	September 30.
Amber Queen. . .	do 18. . .	do 30. . .	do 30.
Hartford.	do 18. . .	do 30. . .	October 1.
Elsinburg.	do 24. . .	do 30. . .	do 7.
Alma.	do 20. . .	October 1. . .	do 7.
Burnet.	do 20. . .	do 1. . .	do 2.
Secretary.	do 20. . .	do 1. . .	do 3.
August Giant.	do 20. . .	do 2. . .	do 2.
Bacchus.	do 22. . .	do 5. . .	do 7.
Cambridge.	do 16. . .	do 5. . .	do 5.
Concord.	do 24. . .	do 5. . .	do 5.
Canada Arnold. . .	do 14. . .	do 5. . .	do 10.
Norton's Virginia. .	do 22. . .	do 5. . .	do 6.
Alvey.	do 22. . .	do 7. . .	do 7.
Pizzaro.	September 21. . .	do 7. . .	do 7.
Clevener.	do 21. . .	do 7. . .	do 7.
Marion.	do 4. . .	do 7. . .	do 7.
Rogers No. 2.	do 24. . .	do 10. . .	Oct. 7 partly ripe.
Naomi.	do 24. . .	do 10. . .	do 10.
Cummingham.	do 25. . .	do 10. . .	do 12 not ripe.
Ariadne.	do 20. . .	do 10. . .	do 12 do
Isabella.	do 26. . .	do 10. . .	do 12 do
Othello.	October 1. . .	do 10. . .	do 12 do
Senasqua.	September 26. . .	do 10. . .	do 12 partly ripe

Red Grapes.

Name.	Date of Colouring.	Date of Ripening.	Date of Gathering.
Delaware	September 5	September 16	October 1
Moyer	do 8	do 17	do 1
Dracut Amber	do 16	do 25	do 1
Mary	do 6	do 25	do 1
Northern Muscadine	do 14	do 25	do 3
Rogers No. 30	do 11	do 25	do 3
Gaertner	do 14	do 26	do 2
Poughkeepsie	do 12	do 26	do 2
Brighton	do 12	do 26	do 2
Rogers No. 13	do 12	do 28	do 3
Lindley	do 14	do 30	do 1
Rogers No. 24	do 20	do 30	do 1
Maxatawney	do 14	do 30	do 1
Owasso	do 16	do 30	do 1
Salem	do 9	October 1	do 3
Massasoit	do 16	do 1	do 1
Norwood	do 18	do 1	do 2
Victoria	do 21	do 1	do 2
Berckmans	do 24	do 3	do 7
Rogers No. 5	do 16	do 5	do 5
Woodruff	do 16	do 5	do 7
Agawam	do 16	do 5	do 5
Rogers No. 39	do 22	do 6	do 10
Jefferson	do 21	do 6	do 10
Requa, Rogers No. 28	do 26	do 6	do 6
Vergennes	do 20	do 6	do 6
Oriental	do 24	do 10	do 10
Highland	do 24		Oct. 7, not ripe
Diana	do 24		do 10, do
Ulster Prolific	do 24	October 10	do 10, partly ripe
Catawba	do 21	do 10	do 10, do
Beauty	do 25		do 12, not ripe
Rogers No. 32	do 20		do 10, do
Challenge	do 25		do 10, partly ripe
Iona	do 30		do 10, do

White Grapes.

Name.	Date of changing Colour.	Date of Ripening.	Date of Gathering.
Hayes.....	September 15...	September 24...	October 2
El Dorado.....	do 8...	do 24...	September 30
Lady.....	do 8...	do 25...	October 1
Jessica.....	do 4...	do 25...	do 3
Empire State.....	do 12...	do 25...	do 3
Roger's No. 34.....	do 20...	do 25...	September 30
Allen's Hybrid.....	do 18...	do 26...	October 3
Duchess.....	do 18...	do 26...	do 6
Moore's Diamond.....	do 19...	do 27...	do 2
Perkins.....	do 18...	do 28...	do 4
Kensington.....	do 20...	do 28...	do 4
Niagara.....	do 15...	do 30...	do 4
Grein's No. 7.....	do 18...	do 30...	do 1
Irving.....	do 20...	October 1...	do 4
Elvira.....	do 22...	do 4...	do 7
Martha.....	do 15...	do 5...	do 5
Wilding.....		do 5...	
Lady Washington.....		do 7...	
Prentiss.....	September 20...	do 7...	do 10
Grein's Golden.....	do 19...	do 10...	do 5
Pocklington.....	do 21...	do 10...	do 10
Amber.....	do 21...	do 10...	do 10
Taylor.....	do 21...	do 10...	do 10
Noah.....	do 20...	do 10...	do 5
Triumph.....	October 1.....		Oct. 10, not ripe
Transparent.....			do 10, do
Etta.....			do 10, do
Imperial.....	September 30.....		do 10, do
Eva.....			do 10, do
Pearl.....			do 10, do
Autuchon.....			do 12, do
Missouri Reisling.....	September 21.....		do 5, do

NOTES OF VARIETIES.

In considering the following opinions, it must be borne in mind that of all edible fruited plants, grape vines are among the most variable as to constitution of vine, quality, and quantity of fruit. Slight differences in soil and exposure often cause great variability in the nature of the product. In the main, the information given is based on the behaviour of each variety on the grounds of the Central Experimental Farm, supplemented in some instances by outside observation and experience.

I am indebted to the excellent Grape Manual published by Messrs. Bush & Son & Meissner, of Bushberg, Mo., U.S., for the nomenclature and origin of many of the varieties mentioned. To elucidate future reference, it may be well to say that all our cultivated grape vines east of the Rocky Mountains are derived from a few wild species, by crossing or hybridization between our natives, or with representatives of the European species, *Vitis Vinifera*.

1. *VITIS LABRUSCA* or Northern Fox Grape, native of the south New England and middle States. The *Rogers'* varieties are largely derived from this source.

2. *VITIS RIPARIA* is what is known in northern sections as the Frost Grape; distributed throughout Canada and the north-western States. *Clinton*, *Brant* and *Bacchus* are prominent examples of this class.

3. *VITIS AESTIVA* is the wine grape of the middle or southern States; very few varieties of this species ripen as far north as any portion of Canada.

4. *VITIS VINIFERA*; European or old-world species. Hybrids have been produced between this and a number of our natives, with many failures and some successes.

BLACK VARIETIES.

AMBER QUEEN (*Labrusca?*).—A hybrid introduced by Ellwanger & Barry, sometimes classed with red grapes. Bunch medium to large; berries large oval; amber at first, turning black when fully ripe; good quality; usually three or four days earlier than Concord; keeps well. This is not the Amber Queen grown by a number of amateurs, proprietors of city gardens in Ottawa. This is a pure amber-coloured grape.

ALMA (*Riparia*).—This was erroneously described as a white grape in the report of 1890. I should have said small black, of the Clinton type. May be of value in districts south of this as a wine grape.

AUGUST GIANT (*Hybrid*).—A cross between Black Hamburg and Marion, retaining the characteristics of bunch and berry of the former. Does not attain full perfection of maturity here, although it colours well. Vine a rampant grower, but subject to winter killing. As an amateur variety for points south of this it is to be commended.

ALVEY (*Aestivalis*).—Originated in Maryland. Vine a short-jointed slow grower. Bunch medium, berries small, not promising.

ARIADNE (*Riparia*).—Seedling of Clinton. Bunch and berry small, black, and with present experience, apparently worthless.

BRANT (*Riparia hybr.*).—A seedling of the *Riparia* type, produced from Clinton seed. Bunch long narrow shouldered; berry small, with purple bloom. Flavour a sprightly vinous acid, much liked by some. Vine a rampant grower and heavy bearer, but the foliage is frequently injured by powdery mildew. It makes wine of a high quality; ripening early, it is probably the most valuable of Mr. Arnold's seedlings for northern sections.

BARRY (*Rogers No. 43*).—Vine, like most of the Rogers varieties, a strong grower, but on these grounds has the defect of dropping its leaves before the fruit matures. Bunch medium to large, shouldered, compact; berry large round, covered with bloom. Mildewed slightly the past two years. Keeps till the middle of December, as ripened here.

BELVIDERE (*Labrusca*).—Vine closely resembles Moore's Early. Bunch medium to small; berry small, fair quality. Further trial is needed before an opinion can be offered.

BURNET (*Hybrid*).—A cross between Hartford Prolific and Black Hamburg produced by P. C. Dempsey, of Prince Edward Co., Ont. Vine a fair grower; bunch large; berry medium; size oval; reddish black in colour; fine quality, but does not ripen sufficiently early for our average seasons; a poor keeper; desirable for home use.

BACCHUS (*Riparia*).—Like its parent, the Clinton, in many respects very productive, but the vine is not so vigorous. Bunch and berry small, ripening unevenly; sharp acid. Too late and uncertain for this locality or points northward.

CHAMPION (*Labrusca*).—The hardiness, productiveness, and early ripening habits of this grape have given it popularity in sections where it should be replaced by varieties of better quality, as it is a question whether the cultivation of such varieties tends to develop grape-growing or not. In the colder sections it has much value.

CANADA (*Riparia hybi*).—A seedling of Clinton, crossed with one of the European grapes, produced by the late Charles Arnold, of Paris, Ont. Bunch medium, berry small, round, with a pleasant acid sprightliness of flavour. It ripens among the earliest; keeps only a short time. Recommended for gardens at the north.

COTTAGE (*Labrusca*).—This was given to the public by Mr. W. E. Bull, of Massachusetts, who originated the Concord, of which the Cottage is a seedling, and to which its foliage bears a striking resemblance. Bunch medium to large, berries larger than Concord, perfectly round; not equal to Concord in quality. In this locality the berries separate from the bunch immediately it ripens; but in this condition kept last year into November.

CONQUERER (*Labrusca?*).—Parentage obscure. Vine a strong grower. Bunch long, loose; berry medium size; with the summer heat of Ottawa it does not become sweet enough to be palatable.

CREVELING (*Labrusca*).—Does not attain perfection in this vicinity. Vine a fair grower; bunch loose; berries oval, good quality. Subject to mildew and anthracnose. A vine surrounded by Clintons has set better bunches and borne larger crops than others of the same variety in the vineyard, showing the advantage of foreign pollen towards attaining the best results.

CHASE BROS' Seedling.—Fruit and vine of the Concord type. No apparent improvement.

CAMBRIDGE (*Labrusca*).—Closely resembling Concord. No improvement.

CLEVENER.—No record of the origin of this variety. A small black wine grape without special value.

CUNNINGHAM (*Aestivalis*).—Quite too late for this locality; in fact it is doubtful whether it will ripen in any part of Canada. Essentially a southern grape.

EARLY VICTOR (*Labrusca*).—Originated with John Burr, of Leavenworth, Kans., nearly twenty years ago. It belongs to the *Labrusca* division; a strong grower and a heavy bearer. Bunch above medium size, very compact; berry medium, round, with purplish bloom. Like Florence as grown here, it is particularly perishable, the berries shrivelling and dropping within a few days of gathering. Ripened last year 16th September, this year 20th September. In other grape-growing districts it is often spoken of as a fair keeper and shipper.

EUMELAN (*Aestivalis*).—Supposed to be a variation of the wild grape (*Vitis Aestivalis*) of Texas and Arkansas, and the earliest variety from this stock. Bunch medium size, well shouldered; berries medium; skin thin, pulp fairly tender; ripening with Early Victor; keeps with care up to 1st January. The vine is a short-jointed slow grower.

EATON (*Labrusca*).—From Concord seed; fruited for the first time on these grounds this year. A very large bunch and berry. Berries larger than any of the Black Roger hybrids, rather pulpy. Ripens a few days earlier than Concord.

ELSLINBURG, of *Vitis Aestivalis* extraction.—Vine a weak grower, with small deeply cut leaves. Fruited this year only: bunch and berry small, the latter quite seedy. Not promising.

FLORENCE (*Labrusca*)?—Said to be of *Labrusca* parentage. Vine a short-jointed, slow grower; leaves small; very pubescent. Bunch and berry medium to small, ripening with or before Champion. This year it matured nearly a week ahead of any other variety in the vineyard. Quality only medium. The fruit is very perishable, shrivelling on the vine soon after maturing. As a grape for garden culture in the colder sections it is valuable. Not a market variety in any respect.

HERBERT (*Hybr.*) (*Rogers 44*).—The product of a cross between Black Hamburg and *Vitis Labrusca*. Vine a strong grower, occasionally subject to mildew. Bunch and berry among the largest, very handsome and quality good. Keeps easily to the middle of January. Where this variety succeeds, it is one of the most profitable of the Roger hybrids.

HARTFORD PROLIFIC (*Labrusca*).—An old and well known variety, especially in the eastern States, where it originated about thirty years ago. In this vicinity it cannot be taken as a standard of earliness, as this year it barely ripened before frost. In quality better than Champion, but too poor to encourage where finer grapes ripen.

IVES (*Labrusca*).—Vine vigorous and healthy. Bunch medium to large; berry approaching oval in form. Although it colours well, it does not thoroughly mature here. Farther south it may have value as a wine grape, for which purpose it was first introduced.

ISABELLA (*Labrusca*).—One of the oldest representatives of the native American grape. Its place has been taken by more profitable varieties in most grape-growing districts. Does not mature here.

JANESVILLE (*Labrusca*).—Origin obscure. Of *Labrusca* parentage. Bunch and berry small; juicy, pleasant, but pulp is generally tough and objectionable. Ripening as it does with Champion, for home use I think it preferable, but as a market variety and in point of productiveness it does not compete with the former.

MOORE'S EARLY (*Labrusca*).—A seedling of Concord. Much resembles its parent, with a larger berry and smaller bunch. Quality equal to Concord. Vine rather a slow grower; needs careful cultivation and liberal manuring. For home use and market it should have a place in every collection.

MERRIMAC (*Rogers No. 19*).—Vine an exceptionally free grower, usually healthy and exempt from mildew; bunch medium size, roundish, and compact. In bunch and berry closely resembling Barry and Wilder. Slightly sweeter however, and ripening more evenly, it is on the whole preferable. Keeps well.

MONTEFIORE (*Hybrid*).—Vine weakly, subject to mildew. Resembles Early Victor in size of bunch and berry. As a red wine grape, its merits have been strongly advocated farther south, and for such purpose it may be valuable in localities where it ripens to perfection.

MONROE (*Labrusca*).—A cross between Delaware and Concord by Ellwanger and Barry, of Rochester, N.Y. Medium sized bunch and berry; poor quality; not desirable.

MARION (*Riparia*).—A southern wine grape of considerable repute. Although it colours early, yet it is one of the last to ripen, and does not attain here the requisite sweetness to make wine of the best quality. Vine hardy, vigorous and productive; somewhat liable to mildew.

NORTON OR NORTON'S VIRGINIA (*Vitis Aestivalis*).—One of the leading wine grapes of the South Central States. Bunch small; berry medium; very sour as fruited here, the summer heat being insufficient to bring it to perfection.

NAOMI (*Riparia hybr.*).—Of Clinton parentage with a mixture of foreign blood. Vine vigorous, productive; bunch large, shouldered; berry small; quality very good, with a peculiar sugary suggestion. I am inclined to think favourably of this as an amateur variety where it will ripen. Uncertain in this vicinity.

OTHELLO (Arnold's Hybrid, No. 1.) (*Riparia hybrid.*)—Vine vigorous, and productive. Does not ripen here. One of the most popular of our American grapes in France, for making wine.

POTER (*Labrusca?*)—Bunch compact, medium size, not shouldered; berry large; altogether resembling Cottage quite closely; skin thick, and pulp rather tough. Ripened last year with Champion, this year about one week later; much better quality.

PEABODY (*Riparia*).—A seedling of Clinton, raised by Mr. Ricketts, of New York State. Bunch and berry medium size, the latter oval with blue bloom; seeds large; berry juicy, acid, with a peculiar breaking quality of flesh. Matures about a week later than Moore's Early; vine a fair grower.

PIZZARO (*Riparia hybrid*).—A cross between Clinton and a foreign variety. Bunch and berry small black; late; not desirable.

ROGERS No. 17 (*Hybrid*).—Much resembling Herbert, No. 44, and apparently no improvement.

ROGERS No. 36 (*Hybrid*).—Same season as last; not quite as large as Herbert. Vine a strong grower, free from mildew.

ROGERS No. 2 (*Hybrid*).—Vine a strong grower; subject to leaf mildew. Bunch large; berry very large, oval; sharp acid. Too late for this and similar latitudes.

SECRETARY (*Riparia hybrid*).—A cross by Mr. Ricketts between Clinton and a foreign variety. It retains the Clinton foliage and style of bunch. Mildews badly; nothing to commend it for this locality.

SENASQUA (*Labrusca hybrid*).—A hybrid between Concord and Black Prince; a foreign variety. Vine a fair grower but not hardy. Bunch of large size, very compact, shouldered; berries medium; too late to obtain an idea of quality as fruited here. Am inclined to think favourably of it for southern Ontario.

TELEGRAPH.—Of the *Labrusca* or Southern Fox grape type, coming according to the Bushberg catalogue from Pennsylvania. Bunch medium, very compact; berry purplish black, oval; sweet, with slightly foxy flavour. I am inclined to think favourably of it.

WORDEN (*Labrusca*).—A seedling of Concord; for this climate much more desirable, on account of maturing a week or ten days earlier, and being of better quality. As a shipping grape it does not come up to the standard of Concord, being thinner in skin and more tender generally. Vine hardy and vigorous. Owing to the great demand for this variety when first given to the public, many vines not true to name were sold, resulting in great disappointment to purchasers as the reputed Wordens frequently developed into good old-fashioned Concords. This was our experience with four out of six vines of this variety planted in the experimental vineyard.

RED VARIETIES.

AGAWAM (*Rogers No. 15*).—Vine a strong free growth, inclined to mildew; bears profusely. Bunch and berry large; colour, dark crimson; very rich; juicy; of first quality. Skin thick; keeps well without losing its flavour. In this section it does not ripen to perfection every season.

AMINIA (*Rogers No. 39*).—Resembles the last so closely as to render a description unnecessary. In flavour and keeping qualities not equal. Vine fairly vigorous.

BRIGHTON (*Labr. hybrid*).—A cross between Concord and Diana Hamburg. A strong, free grower; very productive; fairly free from mildew. Bunch large; well shouldered; berry medium; colour, dark crimson; pulp melting; juice very sweet; equal to Delaware in quality. Unless perfectly ripened does not keep well, losing flavour in three or four weeks. Too tender for distant shipment; where it ripens, invaluable for home use. Matured comparatively earlier this year than last.

BERCKMAN'S (*Riparia hybrid*).—Resembles Clinton, one of its parents, in form of bunch, and Delaware, the other parent, in flavour—not quite so sweet however. Ripened last year a few days after Delaware, but was much later this season. I am inclined to think well of it.

BEAUTY (*Labrusca*).—Said to have originated in Minnesota from Delaware, which it resembles. Bunch, medium, compact; berry round, medium size; the colour of Salem, with a purplish tinge; pulpy; poor quality.

CATAWBA (*Labrusca*).—One of the oldest and most widely known grapes in cultivation, being a selection from the native *vitis Labrusca*, of North Carolina, introduced nearly seventy years ago. Valuable as a market grape where it ripens and is free from mildew; much too late for this vicinity.

CHALLENGE (*Labrusca hybrid*).—Said to have originated from Concord seed, fertilized with a foreign variety. Bunch large; berry medium fair quality; ripens very unevenly, and late.

DELAWARE (*Vinifera hybrid*).—The origin of this widely disseminated variety is unknown. Vine a slow grower, never attaining very large size; hence particularly valuable for garden culture. Bunch medium; berry small, very sweet and juicy; quality best. In the Mississippi valley, where this does not succeed on its own roots, it has been grown satisfactorily grafted on Concord roots. One of the most valuable for this latitude.

DRACUT AMBER (*Labrusca*).—Is simply a variation of the Southern Fox grape, maturing exceptionally early. Vine vigorous; bunch large; berries large, round and thick-skinned; a poor keeper, with such a strong foxy odour as to be very objectionable to most people; hardly worthy of propagation.

DIANA (*Labrusca*).—Vine succeeds well, but its fruit does not ripen here.

GAERTNER (*Rogers No. 14*).—A very strong grower, with healthy foliage. Bunch medium; berry large, light amber; attractive; good quality; when kept, develops a slight foxiness. Ripening as it does soon after Delaware, considering quality and productiveness, it will generally give satisfaction.

HIGHLAND (*Labrusca hybrid*).—Produced from Concord fertilized with a foreign variety, by Mr. Ricketts, of New York. Vine a weak grower; bunch long; berry medium size, and of bright, attractive colour; skin thick; very juicy; acid as grown here, where it does not thoroughly mature; a variety well worth testing south of this.

IONA (*Labrusca*).—A seedling of Catawba; a fair grower, bearing fruit of first quality; is subject to mildew; ripens with Catawba; too late for this locality.

JEFFERSON (*Labrusca*).—A cross between Concord and Iona, by Mr. Ricketts, of New York. Vine a strong grower, of the Concord type; affected with anthracnose the past season. Bunch large; berry medium size, bright red, thick skinned; in quality very rich and juicy. In keeping it shrivels, but retains its flavour; as a market grape, where there is a longer ripening season than at Ottawa, it should be more generally planted.

LINDLEY (*Rogers No. 9*).—Without doubt one of the most valuable and generally adaptable of Rogers' hybrids. Vine a healthy, free grower. Bunch long, loose, occasionally so, from imperfect fertilization; berry medium to large, juicy and rich; keeps without extra care till the first of January.

MOYER. ——— The proprietor of this grape, Mr. E. D. Smith, of Winona, says, that it originated with Mr. Allan Moyer in Lincoln County, Ontario, about ten years ago. As fruited here this year it seems almost an exact counterpart of Delaware; the berry slightly larger; bunch generally smaller; quality is good; worthy of trial.

MARY (*Labrusca*).—Introduced by Jacob Rommel, of Missouri. Vine a free, healthy grower, with Roger-like foliage; productive; bunch large, shouldered; berries medium to large; light amber; skin thick; juicy, sweet; quality, fair to good; keeps to 1st January; very promising.

MAXATAWNEY (*Labrusca*).—Bunch small; berry medium size; amber coloured; quite foxy; poor quality; shrivels soon after picking; further trial is needed; not promising.

MASSASOIT (*Rogers No. 3*).—A fair grower; ripening with Salem. Bunch larger, berry smaller; light red; good quality; much subject to mildew; preferred by many to Salem or Agawam; keeps well into December or January.

NORTHERN MUSCADINE (*Labrusca*).—Another very foxy kind, closely resembling in that respect Dracut Amber. Bunch and berry medium size; dull amber colour; fairly productive. For those who admire the decidedly foxy characteristics, it is worth planting.

NORWOOD (*Labrusca*).—In growth and appearance resembles Lindley. Bunch large, shouldered; berry large; bright amber; thick skinned; very productive; keeps well; ripened 1890 with Delaware; this year, 1891, nearly two weeks later. Very desirable.

OWASSO (*Labrusca*).—Strong grower; productive foliage, and fruit apt to mildew. Bunch large, long and loose; imperfectly fertilized. Berry dark amber, mottled; poor keeper; hardly to be commended.

POUGHKEEPSIE.—From Iona and Delaware seed; vine a weak grower; entirely lacking vigour on these grounds. Bunch and berry larger than Delaware; not equal in quality but fairly good. Does not keep well; should be tested in a limited way.

ROGERS No. 30 (*Hybrid*).—Vine vigorous, productive. Bunch large. Berry very large, rich and juicy; rather irregular as to date of ripening; last year it matured after Lindley; this year four or five days ahead; a valuable variety.

ROGERS No. 13 (*Hybrid*).—Vine a moderate grower. Bunch and berry large dark amber, good quality; resembles Vergennes quite closely, but is not preferable, as it is not a good keeper.

ROGERS No. 24 (*Hybrid*).—A fairly satisfactory vine, but resembling Agawam too closely to warrant propagation.

ROGERS No. 5 (*Hybrid*).—Vines have made a poor growth and borne lightly. In season, quality, and appearance resembling Lindley.

REQUA (*Rogers No. 28*).—Vine weakly; bunch medium to large; berry large, oval, dark amber; highly flavoured; too late for this vicinity.

ROGERS No. 32 (*Hybrid*).—Vine vigorous and productive but lacking in foliage, which retards and prevents perfect ripening. Bunch large; berry large, oval, amber-coloured, juicy; a fair estimate of quality could not be obtained.

SALEM (*Rogers No. 53*).—Bunch medium. Berry large, dark chestnut ; skin thick ; juicy, and pulp rich and of first quality. Subject to mildew of vine, which injures the keeping qualities of the fruit. One of the best of the Roger's hybrids where not affected by mildew.

ULSTER PROLIFIC (*Labrusca*).—Vine has not made a satisfactory growth. Of half a dozen planted in different situations all are feeble and making weak growth. Bunch short, shouldered ; berry medium ; bright amber ; flavour not rich, but very sweet and pleasant. Where the plant succeeds it may ripen its fruit earlier than as noted elsewhere in the table.

VICTORIA (*Labrusca*).—Vine lacking vigour and hardiness ; bunch loose, medium size ; berry oval ; dark amber ; skin thick, acid ; not reliable for this locality.

VERGENNES (*Labrusca*).—Originated in Vermont ; vine exceedingly hardy and vigorous. Bunch and berry large ; skin thick ; flavour rich and sprightly, which characteristic is well retained even when the fruit is kept under ordinary circumstances. As a winter grape it probably heads the list.

WOODRUFF (*Labrusca*).—Said to be a cross between Concord and Catawba ; vine vigorous, short-jointed, with thick leathery leaves ; bunch medium ; berry large, round, light red ; foxiness distinctly noticeable ; quality fair ; cannot be considered good ; does not keep well.

WHITE VARIETIES.

ALLEN'S HYBRID (*Vinifera hybrid*).—Is of interest as being the first American hybrid grape, produced nearly forty years ago. Vine a weak grower ; bunch medium. Berry small ; golden yellow ; fine quality ; home use.

AMBER (*Riparia*).—Originated in Missouri ; of the same stock as Elvira ; vine a good grower ; bunch and berry medium size ; the former rather long and loose. A correct estimate of quality can hardly be arrived at as ripened here.

AUTUCHON (*Riparia hybrid*).—Mr. Arnold, of Paris, Ont., produced this by crossing a seedling of Clinton with Golden Chasselas. A weakly vine, bearing a small white grape ; ripening very late ; of no value here.

DUCHESS (*Labrusca hybrid*).—Supposed to be of Concord and Delaware extraction. Vine exceedingly vigorous and productive ; bunch medium ; very compact. Berry medium size ; greenish white ; clings well to cluster ; flesh tender, with a peculiar breaking quality, and brisk vinous flavour. Because of its firm texture it should prove a desirable market variety. This grape was shown in good condition by Ellwanger & Barry, of Rochester, at the meeting of the Western New York Horticultural Society, 28th January, 1892.

EL DORADA (*Labrusca hybrid*).—Produced by Mr. Ricketts, by crossing Concord with Allen's hybrid. Vine vigorous, hardy, fairly productive, but does not always set its fruit well ; bunch long, loose. Berry medium to large ; when fully ripened, a beautiful golden yellow. The flavour and quality are richer and finer than anything in the vineyard. Too tender for shipment, but should have a place in the garden of every amateur.

EMPIRE STATE (*Riparia*).—A cross between Hartford Prolific and Clinton, by Mr. Ricketts, of New York, who sold the vine and right of sale, to a Rochester nurseryman for \$4,000. It has not fruited in sufficient quantity in this vineyard thus far to describe it accurately. Appears to be somewhat later than Delaware.

ELVIRA (*Riparia*).—Vine hardy and a strong grower ; bunch of medium size ; compact. Berry medium, round, green ; when well ripened tender, with a fine rich flavour. Judge Mosgrove, the proprietor of a vineyard of considerable size on the Richmond road, finds this a profitable variety, and experiences no difficulty in ripening it. On these grounds it has not reached perfection during any season of its fruitage thus far.

ETTA (*Riparia*).—Said to be a seedling of Elvira. Vine a strong grower ; very productive. Bunch small ; berry medium to large, round, good quality. About a week later than Elvira. Worthy of trial where the season is long enough to ripen it.

EVA (*Labrusca*).—A seedling of Concord, closely resembling Martha ; a little later but not superior in any respect.

IRVING (*Hybrid?*)—A single vine fruited this year for the first time in the Farm vineyard. Bunch medium; berry large, pinkish white; pulp tender.

GREIN'S GOLDEN (*parentage?*)—Vine fairly vigorous; productive. Bunch large, loose, somewhat defective. Berry large, greenish white; thin skinned; pulp tender, juicy, pleasant, but not high flavoured subject to mildew. Valuable for home use where it succeeds.

HAYES (*Labrusca*).—A seedling of Concord, originating with Moore's Early. Vine; a weak grower; bunch and berry small, of a rich yellow colour; flesh tender, melting; very good; keeps with ordinary care about a month. For home use only. It should be planted particularly in localities where the summer heat is comparatively limited.

IMPERIAL.—Said to be a seedling of the last, with an admixture of foreign blood, which is quite perceptible in the character of fruit. Bunch and berry medium to large; white, with a pinkish or lilac-coloured bloom; rich and juicy, with the aroma of hot-house grapes. Subject to mildew; it does not ripen to perfection here.

JESSICA (*Vinifera*).—Introduced by D. W. Beadle, of St. Catharines, Ont. Vine fairly vigorous. Bunch and berry small; colour, golden yellow; thin skin; pulp tender; good quality; home use in northern sections.

KENSINGTON (*Riparia hybrid*).—Produced at London, Ont., some years ago, by Mr. Wm. Saunders, who pollenized Clinton with Buckland's Sweetwater. This variety, in a remarkable way, combines in fruit and vine the characteristics of both parents. Vine fairly vigorous; wood short-jointed; leaves deeply cut; bunch medium. Berry medium size, oval; white skin, thin; pulp rich and juicy; a grape of first quality, ripening with or a little before Concord; home use. Thus far it has not been propagated to any extent, but its probable value for southern localities, should lead to giving it a more thorough trial by grape-growers.

LADY (*Labrusca*).—A seedling of Concord; vine is lacking in vigour; bunch small. Berry large, round; very agreeable flavour, with slight foxiness. For home use it is heartily recommended on account of earliness and quality.

LADY WASHINGTON (*Labrusca hybrid*).—Produced by pollenizing Concord with Allen's hybrid. Vine vigorous, partaking of the character of the female parent; bunch and berry large; pulp rather tough; fair quality. It may be serviceable in southern Ontario. Too late for this vicinity.

MOORE'S DIAMOND (*Labrusca*).—Said to be a cross between Iona and Concord. Vine a fair to medium, sometimes weak grower; bunch medium. Berry medium size, golden yellow; flesh tender and melting; good quality; does not keep well; probably too tender for distant shipment. Being earlier than Niagara, it has more value in the colder districts.

MARTHA (*Labrusca*).—A seedling of Concord; vine of the Concord type, but slower in growth; bunch medium. Berries small, green, pulpy, often uneven in size, foxy, medium quality; season of Concord; not a sure crop here.

MISSOURI REISLING (*Riparia*).—A seedling by Mr. Grein from Taylor; a white grape, quite too late for most points in Canada.

NIAGARA (*Labrusca*).—Said to be a cross between Concord and Cassady. Vine a vigorous and strong grower; hardy, productive. Bunch large, shouldered; berry large, round, pale yellow, as ripened in the Niagara and eastern districts. Good quality, with a well-marked foxy odour. It is subject to mildew here, and ripens only in favourable seasons.

NOAH (*Riparia*).—A seedling of Taylor. Vine makes a strong annual growth. Like all seedlings of Taylor, in this vicinity it mildews badly and is too late.

PRENTISS (*Labrusca*).—A seedling of Isabella. Vine a good grower; bunch compact and large. Berry medium size; flavour pleasant, though somewhat foxy; not of high quality. In some districts it is considered a good market variety. Too late in this vicinity for that purpose.

POCKLINGTON (*Labrusca*).—A seedling of Concord. One of the most vigorous and hardy of vines. Bunch large; berry large; fair quality, with a distinct foxiness. As it carries well, it is a promising market sort where it ripens. Too late for northern Canada.

PERKINS (*Labrusca*).—Vine lacking in vigour; fruit drops badly. Bunch medium. Berry small to medium; colour greenish white, turning to pale lilac, tinged with red; flesh juicy, with considerable foxiness; has no merits as a keeper. Shrivels and loses flavour rapidly.

PEARL (*Riparia*).—A seedling of Taylor; very late, and utterly worthless on account of its liability to mildew.

ROGERS No. 34 (*Hybrid*).—Vine vigorous and productive; bunch long loose. Berry large, light yellow; skin thin; flesh tender, rich and melting; first quality. Like a number of the Rogers varieties, it is not a perfect self-fertilizer, and should not be planted in an isolated position. Valuable for home use.

TAYLOR (*Riparia*).—An old Kentuckian variety brought into notice many years ago. Vine makes satisfactory growth, but is badly affected with powdery mildew; bunch and berry small; poor quality; not adapted to our soil and climatic conditions.

TRIUMPH (*Labrusca hybrid*).—A cross between Concord and a foreign variety, by Campbell, of Ohio. Vine not hardy here. Fruit attractive, on account of size and appearance, but its value in Canada is quite doubtful.

TRANSPARENT (*Riparia*).—A seedling of Taylor. Vine vigorous; very productive; bunch small, very compact; berry very small, unattractive. As a wine grape it is worthy of a trial in sections to the south of this.

WILDING (*of Riparia and Labrusca extraction*).—Vine a fair grower, apparently hardy. Bunch rather small; berry medium, green, very thin skinned; pulp tender, of first quality; subject to mildew. Home use south of this point.

STRAWBERRIES.

The spring of 1891 was most unfavourable to fall-set plants, of which the new plantation is composed. Cold weather and high winds, coupled with the somewhat sandy nature of the soil, wrought much damage to a "stand" which the previous autumn was almost perfect. On this account reliable comparisons between varieties could not be made.

METHODS OF PLANTING.

In setting out the new plantation in the fall of 1890 two methods of planting were adopted. Half of each variety was planted in the ordinary way, by (1) making a hole deep enough to admit the roots without doubling them up, then spreading them carefully in all directions as much as possible, filling in the soil by hand, and taking care to compact it firmly; (2) The remaining half was planted by striking a spade across the line of the row. Into this cleft the fan-shaped roots were inserted and spread as much as the opening would admit, and the earth then packed well about them. This method requires a man and boy—the former to operate the spade, the latter to set the plants—and is much more rapid than the old style.

Results reached are:

1. A perfect stand of plants was obtained from both methods.
2. No difference in the health and vigour of the plants comprising the two sets was noticed.
3. The spade method being more rapid, cheaper, and equally satisfactory, is therefore recommended.

RENEWING OLD BEDS.

When old beds have become run out and lacking in vigour, it is occasionally found convenient to renew them without losing a crop. This may be accomplished by the following plan: As soon as the crop of berries has been picked, remove the mulch from between the rows, dress these interspaces with rotted manure, wood ashes, or some commercial fertilizer, which should be well worked in with a small plough or cultivator; then train the runners into these spaces. By the middle of September the young plants will have become firmly rooted, when a line is stretched on either side of the old rows, and the young plants separated rapidly from the old

with an edging knife, or sharp spade. In small plantations it will be found more convenient to use a spade than a plough in turning under the old plants; where larger, a plough will be found to be more economical.

RASPBERRIES.

(*Propagated from Suckers.*)

"With a view to test the advantage as well as cost of protecting during the winter by laying down and covering with sufficient earth to hold them in position, half of the plants of each variety were pruned and treated in this manner. The relative returns from the two sections will be carefully noted next year." (Report for 1890.)

RESULTS.

1. The first effect was to hasten the ripening of varieties so treated from five to eight days.

2. With such hardy varieties as Turner and Hansel, the increased product and earliness did not more than repay the cost of such protection.

3. With varieties of the grade of hardness of Cuthbert, Marlboro', Herstine, Heebner and Golden Queen, productiveness was increased 16 to 22 per cent. This, with the advantage of increased earliness, much more than repaid the cost of protecting.

4. It is fair to conclude that in this and similar latitudes, suckering raspberries of nearly all varieties are left unprotected at an actual loss to the owner.

YIELD OF VARIETIES.

Standard Red sorts yielded in the following order: *Cuthbert, Hansel, Turner, Marlboro', Heebner, Reider, Clark, Hudson River Antwerp, Rancocas.*

BLACK CAPS—*rooting from the tips*—*Shaffer, Hillborn, Gregg, Mammoth Cluster, Souhegan*, were productive in the order named and may be considered valuable in the same order.

Yellow.—*Golden Queen*—Is the best yellow berry for market and home use.

Brinckle's Orange, on account of its exceptionally fine quality, should be grown in a limited way for home consumption.

SEEDLINGS AND HYBRIDS.

With the experience of the past three years as a guide, a new trial plantation has been made by selecting the most promising, from the original large collection of seedling and hybrid raspberries, also the best of the named varieties of raspberries and blackberries.

The transplanting was done in October, after which a furrow was thrown up on each side of the rows, and the whole surface of the ground liberally manured. In this plot there are now 105 varieties of selected seedlings and hybrids; 35 named varieties of Black and Red Caps, and 20 kinds of blackberries. As a rule, there are 100 plants of all named sorts, and a quarter that number of the seedlings and hybrids.

BLACKBERRIES.

Paying results were obtained by laying down all varieties of blackberries in the fall of 1890. In order to accomplish this successfully the canes should not be pinched, before they have attained a height of from 3 to 3½ feet. Care must be taken in bending the canes down to loosen the soil at the side of the root to which the plant is inclined, thus preventing the cane from snapping off at the base. As noted last year, *Agawam, Snyder, Stone's Hardy* and *Western Triumph*, with the addition of *Nevada*, which did exceptionally well the past season, can be recommended with confidence.

CURRANTS.

Red and white currants gave satisfactory returns the past season. In point of productiveness the principal red varieties ranked in the following order: *Victoria*, *Raby Castle*, *Cherry*, *Fay's Prolific*, *Red Dutch*, *Red Grape*, *London Red*, *Prince Albert*. White: *White Grape*, *White Dutch*.

Black currants in low situations were a total failure on account of late frosts. A large number of seedlings of this class on higher ground fruited very freely.

GOOSEBERRIES.

Were unusually free from mildew during the early part of the season, but the disease developed considerably on unsprayed plants later in the summer.

Downing yielded twice the number of boxes per plant of any other variety. *Houghton*, though healthy and fairly productive, is small. *Pearl* gives increasing satisfaction, and without doubt will take a leading place among native gooseberries.

III.—VEGETABLES.

A large amount of data has been collected bearing upon various phases of successful vegetable growing, as well as facts regarding varieties, but for the present it is thought best to confine a report to the enumeration, with brief descriptive notes, of the most reliable and satisfactory varieties in each class, based upon our experience during the year. The soil upon which tests were conducted is a sandy loam in good condition, having been previously used for growing strawberries.

Cut-worms were kept in check by the use of poisoned traps, made by soaking clover hay or freshly-cut weeds in a strong mixture of Paris green in water. This method of destroying cut-worms has been advocated at length by Mr. James Fletcher, the Entomologist of the experimental farms, and is well worthy the careful attention of amateurs and market gardeners. Hellebore was also used with a fair degree of success in checking the injury caused by the cabbage-root maggot, as was pyrethrum when applied as a specific for the cabbage worm.

BEETS.

A comparative test of thirty-one varieties was made the past season, including a number of the best French and English sorts.

The following list covers the most valuable of those tested, given in order of maturity.

Blood Turnips.—Round, smooth, dark red, maturing early; strain well selected; inclined to become hollow late in the season.

Eclipse.—Turnip-shaped, dark red, reaching edible maturity shortly after the preceding. Tops large; may be used for greens.

Lentz.—Round, medium in size and season, very even and regular. Foliage green with red veins; a desirable medium early sort.

Covent Garden Red.—Half long, light red, fair size; very even and desirable.

A few varieties usually grown for greens deserve special mention as ornamental plants. In bedding they might be used with good effect. Among these may be mentioned Dells Black Leaved, Reines des Noires, and Swiss Chard.

CABBAGE.

Out of 60 varieties included in the experimental plots, the following will, for home use or market, probably prove most satisfactory:—

EARLY.

Early York.—An old and well-known variety; generally a sure header; oval in shape; very solid, varying in weight from 2 to 9 pounds.

Express.—Same season as last; type not quite as well fixed; heads round and solid; weight, 2 to 6 pounds.

Premier.—Roundish oval, vigorous thick leaf; a good early market sort, which averaged $5\frac{1}{2}$ pounds per head this season.

Wakefield.—This is a sort of generic name, with which are associated Selected Early Jersey Wakefield, Early Jersey Wakefield, Jersey Wakefield, Long Island Wakefield, and Charlston Wakefield. There was practically no difference in the time of maturing of any of these. Seedsmen are too fond of prefixing adjectives to old sorts, or to fancied improvements, thus unnecessarily multiplying varieties.

Long Island Wakefield (Henderson) gave the greatest number of solid heads for the number of plants set out. Heads averaged 6 pounds.

Arcostook.—Heads round; very solid; strain is not completely fixed, but a very promising early sort, averaging 6 pounds per head.

MEDIUM EARLY.

Montreal Market (Evans).—Medium to large; round flat-topped; heads well and solidly; heaviest head, 15 lbs.; lightest, $5\frac{1}{2}$ lbs.

Succession.—Last year as well as the past season, this has proved itself one of the most valuable midsummer varieties; average weight this year, 11 lbs.

Schweinfurt (Simmers).—Large, flat, solid; a sure header; averaging 10 lbs. per head.

LATE VARIETIES.

Fottler's Brunswick.—Large, round, leafy; one of the best medium early or late market sorts. Average weight, 11 lbs.

Brunswick Short Stem (Pearce).—Much like last, but later; heads of the largest size, round, flat, weighing on an average 12 lbs.

Hyde Park (Hallock).—One of the largest and best in the list for late market; head round solid; average weight, $13\frac{1}{2}$ lbs.

Mammoth Rock Bed (Henderson).—Probably the best of the large late-pickling sorts.

Drumhead Savoy (Pearce).—Medium size; very firm and a sure header; average weight, 5 pounds; one of the best varieties for winter storing.

CAULIFLOWER.

Owing to the extreme drought already referred to, very few of the thirty varieties of this vegetable gave satisfactory and reliable results; many failed to head, while others, especially early varieties, headed prematurely, consequently fell below the characteristic size. *Early London* and *Autumn Giant* headed best and gave the most satisfactory returns. The latter is exceptionally large, and a sure header.

CELERY.

A varietal test, in which thirty kinds of this vegetable were included, was made. Seed sown on 31st March appeared in fifteen to twenty days. The lowest per cent found to germinate was 17 and the highest 74 per cent. After transplanting twice and cutting back once, it was set out in well-manured trenches on 22nd June. All varieties were twice handled before earthing the 1st September. Treated in this way, there was not more than five days difference in the time of edible maturity of any variety. But this early earthing up had a very deleterious effect upon the keeping quality of the late sorts; nearly all of this class were affected with heart or stalk rot—a disease said to be of bacterial origin—which, in a few cases, entirely destroyed some varieties, and in all cases prevented their being kept for more than a few weeks. The spread of this disease may have been peculiarly favoured, and aggravated by the unusually hot weather during September. Varieties earthed two weeks latter did not suffer to the same extent.

Last year the following varieties were recommended, and there does not seem to be any good reason for changing the list this year:—

Paris Golden Yellow (Steele Bros.)

White Walnut (Henderson).

Half Dwarf (Henderson).

White Plume (Ewing).

Sandringham.

Giant Golden Heart (Vaughan).

Red Giant Solid.

Golden Heart (Pearce)—A small growing, rather early variety; good quality; very satisfactory this year.

Giant Pascal.—One of the best tall-growing late sorts; generally crisp, with fine nutty flavour.

PEASE.

The following selection, out of sixty varieties on trial, proved most satisfactory, season, yield and freedom from mildew considered:—

Early.

Dan'l O'Rourke, *R. N. Yorker*, *Vick's Early* and *Lightning*, tall-growing sorts, needing stakes or trellis. These were in edible condition 55 days after sowing, though much retarded by late spring frosts and cold.

First and Best, *First of All*, and *Philadelphia* are half-dwarf sorts, reaching edible maturity about the same time.

Second Early.

Little Gem, *Small French* and *Blue Peter* reached edible condition in 70 days after sowing. *American Wonder*, a dwarf variety, is a few days earlier, and might be classed with the early sorts; on most soils it is not sufficiently productive for market. *Bliss' Abundance* and *Yorkshire Hero*, very productive varieties of medium height, are ten days later than the first mentioned of this group.

Late.

Sanders Marrow, *Black-eyed Marrow-fat*, and *White Marrow* complete the season; fit for table use 90 days after sowing.

Edible Podded.—A number of so-called edible podded varieties are now on the market. Some of them are extremely palatable, and valuable additions to our list of vegetables.

Dwarf Sugar, which is an evident misnomer, as it grows to a height of $4\frac{1}{2}$ feet, reaches edible maturity in 70 days. One of the best.

Tall Sugar, about 15 days later than the last, and somewhat taller; is very desirable on account of the size and succulence of the pods.

PEPPERS.

Good treatment of tomatoes will, when applied to peppers, give fair results, though the number of varieties suited to this latitude is proportionately less than in the case of tomatoes. A germination test showed that the seed of many varieties were lacking vitality, six out of thirty giving a return of less than 7 per cent—practically worthless.

The following are among the earliest to ripen and most productive, therefore best adapted to the conditions of this and similar localities:—

Cardinal.—Ripe, August 10; fruit pendant, scarlet, 4 to 6 inches long, pointed; very prolific; one of the best market sorts.

Ruby King (Pearce).—A vigorous grower; fruit very large, pendant, handsome and attractive. Beginning to ripen August 27.

Squash (Henderson).—A very distinct variety, the fruit much resembling, in form and colour, a tomato. Plant a fair grower and fairly productive; medium to late, ripening with the last.

Golden Dawn (Henderson).—Vigorous grower; fruit large, bright yellow. Prolific and medium early.

Coral Gem (Northrup and Braslan).—A dwarf variety; fruit small oval, bright scarlet; held upright in such a manner as to make it a very desirable pot-grown plant for house decoration. Useful, also, for pickling.

TOMATOES.

The work of testing the old, and the many new varieties constantly being introduced, was carried on again this year. The experimental plots contained fifty-seven varieties of eight plants each. The seed was sown in boxes in the green-house on 16th March, pricked into other boxes 2 inches apart on 10th April, and potted about three weeks later, using 3-inch pots. Setting out was delayed considerably by the cold weather of May, and did not take place until 4th June.

In testing the seed of each variety much variation was found. The highest per cent found to germinate in any case was 92 and the lowest 20 per cent. The average vitality of the entire collection was found to be 63.1 per cent. In view of this wide variation, it is essential, for market gardeners especially, to carefully test samples of seed in advance of the sowing period, in order to gain an intelligent idea of the probable return, and quantity of seed required. Where considerable quantities are used, it will be economical to purchase at an early date, small samples for testing purposes before ordering the main supply.

With a view of testing the effect of mulching as a rot preventive, a strip running across the plots, including several varieties, was heavily mulched with coarse strawy manure, containing, however, a very small proportion of fertilizing material. The fruit was carefully examined, at various times during the ripening season, but no appreciable difference in quality or quantity could be detected, although the crop of fruit on the mulched strip was somewhat later in ripening than on those unmulched. In this and similar climates it is of prime importance to select early-ripening varieties, start them early, transplant or re-pot frequently, and set out strong plants after danger of spring frosts is past.

The following list includes the twelve earliest varieties, all set out on 4th June: *Electric* or earliest (Northrup, Braslan, Goodwin & Co.) gave the first ripe fruit on 26th July, followed by *King Humbert*, *Atlantic*, *Early Ruby*, *Early Advance*, *Conqueror*, *Acme*, *Canada Victor*, *Mikado*, *Hathaway*, *Cumberland Red*, *Thorburn's Long Keeper*.

The following twelve varieties gave the largest yield of ripe fruit up to 15th September:—

Hubbard's Early,	General Grant,
King Humbert,	Henderson's 400 (Ponderosa),
Horsford's Prelude,	Conqueror,
Mikado,	Canada Victor,
Early Ruby,	Cumberland Red,
Thorburn's Long Keeper,	Hathaway.

The following twelve varieties gave the largest yield of fruit ripening before frost:—

Horsford's Prelude,	Canada Victor,
Thorburn's Long Keeper,	Cumberland Red,
Essex Hybrid,	Climax,
Hubbard's Early,	Volunteer,
Mikado,	Mitchell's No. 1,
Golden Queen,	Conqueror.

EFFECT OF DIFFERENT FERTILIZERS.

The accompanying table gives the results from the use of various fertilizers as affecting productiveness. The soil upon which the plants were grown was in a fair state of fertility, and ordinarily would not be considered as needing manure of any kind; yet it will be seen that the application of the different fertilizers was in each case helpful.

TOMATOES.
Effect of Fertilizers—Comparative Yields from One Plant of each Variety.

Fertilizers.	Paragon.		Queen.		Trophy.		Electric.		Table Queen.		Early Ruby.		Sunrise.		Total amount of fruit ripened.	Total amount of fruit unripened.	Average yield per plant ripe fruit.
	Ripe.	Green.	Ripe.	Green.	Ripe.	Green.	Ripe.	Green.	Ripe.	Green.	Ripe.	Green.	Ripe.	Green.			
	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.			
Nitrate of soda.	11	2	7	3	16	4	6	.....	19	4	22	.....	13	5	94	18	13.2
Muriate of potash.	13	4	14	4	15	4	12	6	13	1	16	4	16	4	99	27	14.1
Superphosphate No. 1.	15	5	9	5	19	7	10	.....	19	4	22	5	18	7	112	33	16.0
Wood ashes.	15	6	20	5	12	3	21	.....	18	1	16	1	14	6	116	22	16.1
Barnyard manure.	19	7	15	3	20	5	16	...	18	1	24	3	15	8	127	27	18.1
Unfertilized.	9	3	10	5	8	3	12	5	16	1	21	6	13	5	89	28	12.7

Nitrate of soda, muriate of potash and superphosphate No. 1, were used in two applications at the rate of 300 lbs. to the acre. The first application was made at time of transplanting; the second three weeks later; wood ashes applied in the same way at the rate of 50 bushels per acre; barnyard manure at the rate of 6 tons per acre.

IV.—FORESTRY.

DISTRIBUTION OF SEEDLING FOREST TREES.

This line of experimental work, inaugurated in 1890, has met with such hearty approval and co-operation at the hands of the settlers of the North-West Provinces and Territories, that it was decided by the Honourable the Minister of Agriculture to double the number of seedling trees sent out the first year. Accordingly, about 200,000 trees were distributed, each package being prepared for mailing in the same manner as that described in the report for 1890.

The records show that 260 post offices in Manitoba received 1,022 packages, while 130 post offices in the North-West Territories received 883 packages. Ninety-five bundles were distributed throughout the Dominion to specialists who are particularly interested in forest extension and preservation.

With a few exceptions, each package contained the following selection:—

10 Green ash.	<i>Fraxinus viridis.</i>
10 White ash.	<i>Fraxinus Americana.</i>
2 Soft maple.	<i>Acer dasycarpum.</i>
2 Sycamore.	<i>Platanus occidentalis.</i>
2 Linden.	<i>Tilia Americana.</i>
20 American elm.	<i>Ulmus Americana.</i>
6 Manitoba elm.	<i>Ulmus Americana</i> var?
2 Black cherry.	<i>Prunus serotina.</i>
2 Black walnut.	<i>Juglans nigra.</i>
2 Honey locust.	<i>Gleditschia triacanthos.</i>
5 White birch.	<i>Betula Alba.</i>
3 Canoe birch.	<i>Betula papyracea.</i>
2 American mountain ash.	<i>Pyrus Americana.</i>
4 Yellow cottonwood.	<i>Populus monilifera</i> var?
4 Riga pine.	<i>Pinus rigensis.</i>
4 Norway spruce.	<i>Picea excelsa.</i>
1 Arbor vitæ.	<i>Thuja occidentalis.</i>

About 500 Dwarf Mountain pines (*Pinus Montana*) were also sent out, being occasionally substituted for varieties which were exhausted before the total number of packages was completed. More than 300 reports have been received, going to show that the trees, with few exceptions, arrived in good condition and made fair progress during the first season.

It has, however, been uniformly noted that *Honey Locust*, *Black Locust*, *Black Walnut* and *Russian Mulberry* did not ripen their wood sufficiently to escape injury by the first autumn frost. It is not expected that these varieties will succeed at any point in the north-western country. Settlers are specially cautioned in regard to the Russian Mulberry, which is often unwarrantably lauded on account of alleged hardiness, and are advised to be content for the present with the best varieties of native trees; when with these a certain amount of shelter has been obtained, other less reliable varieties may in a limited way be tested.

A collection of forest trees of larger size was also sent by express to the superintendents of Indian agencies, to officers commanding the various posts of mounted police, and to each of the trial gardens of the Canadian Pacific Railway.

DISTRIBUTION OF TREE AND VEGETABLE SEED.

In addition to the seeds sent out in December, 1890, small bags containing from three to five thousand seeds each have been distributed as follows:—

Variety.	No. OF BAGS.	
	Manitoba.	North-West Territories.
Box elder (<i>Negundo aceroides</i>)	1,377	1,188
Green ash (<i>Fraxinus viridis</i>)	613	604
VEGETABLE SEED.		
Asparagus	731	780
Rhubarb	842	780

The samples of asparagus and rhubarb seed were put up in suitable-sized envelopes, with printed instructions for planting and cultivation, and enclosed with the tree seeds.

Of Asparagus, *Conover's Colossal* and *Pulmetto*, and of Rhubarb, *Carleton Club*, *Paragon* and *Stott's Mammoth*, were the varieties distributed.

MISCELLANEOUS DISTRIBUTION.

One hundred and fifty packages, including 12,500 plants, were sent out to various parts of the Dominion, more or less remote from nursery men. The following varieties were used in making this collection:—

SMALL FRUITS.

Raspberries.—Cuthbert, Turner, Hansel.

Strawberries.—Crescent, Bubach, Capt. Jack.

Apple Trees.—Sacharine, Bode, Silken Leaf, Little Hat, Blushed Calville.

Shrubs.—*Rosa rugosa*.

FOREST TREES.

Riga pine, Norway spruce, green ash, white ash, box elder, American elm, white birch and soft maple. Appropriate instructions accompanied each package. See report for 1890, page 94.

V.—FUNGICIDES.

APPLE SCAB.

Some experiments were conducted last summer with the co-operation of Messrs. Wm. Craig, jun., and J. M. Fisk, of Abbotsford, Que., which were designed to throw light upon the following points in the treatment of apple scab:—

1. The relative efficacy of copper carbonate in suspension and solution.
2. The relative efficacy of copper carbonate unwashed (a modified eau-céleste) in solution and in suspension.

3. The possibility and effect of using Paris green with these mixtures.

The results are given in detail in the accompanying table, and may be briefly summarized as follows:—

1. Paying results were obtained from the application of all of the mixtures.
2. In no case was the foliage injured.
3. The unwashed solution (a modification of eau-céleste) gave the best results, and the same preparation in suspension the lowest returns.

4. The addition of Paris green to the fungicides at the time of the second application had no injurious effect upon the foliage, and increased the quantity of sound fruit 8.2 per cent.

TABLE showing per cent of Fruit of First, Second and Third Quality, also per cent of Sound and Wormy Fruit.

Copper Carbonate.	Per Cent First Quality.	Per Cent Second Quality.	Per Cent Third Quality.	Per Cent of Wormy Fruit with Paris Green.	Per Cent of Wormy Fruit without Paris Green.	Per Cent in favour of Paris Green.
1. Solution.....	38·8	46·6	14·5	21·6	26·6	5·
2. Suspension.....	33·5	52·	14·5	16·9	25·9	9·
3. Unwashed Suspension.....	33·	50·	17·	10·5	22·3	11·8
4. Unwashed Solution.....	42·5	46·5	11·	8·5	15	6·5
5. Unsprayed.....	18·	51·	31·	18·	27·	9·

COMPARATIVE RESULTS.

Copper Carbonate.	PERCENTAGE SCALE.									
	10	20	30	40	50	60	70	80	90	100
(4.) Unwashed Solution.....	First Quality.				Second Quality.				Third Quality.	
(1.) Solution.....	First Quality.				Second Quality.				Third Quality.	
(3.) Suspension.....	First Quality.				Second Quality.				Third Quality.	
(4.) Unwashed Suspension.....	First Quality.				Second Quality.				Third Quality.	
(5.) Unsprayed.....	First Quality.				Second Quality.				Third Quality.	
With Paris Green.....	Sound Fruit.								Wormy.	
Without Paris Green.....	Sound Fruit.								Wormy.	

DETAILS OF THE EXPERIMENT.

The trees selected were of the Fameuse variety planted fifteen years ago, and having made good growth are now of fair size. Six trees were set apart for each test. Three applications were made in each case, the first one on the 22nd of May, when the leaves were about half-formed and the blossoms just beginning to open. At the time of the second application, 8th June, Paris green at the rate of 1 lb. to 200 gallons of water was added to each mixture when *fully diluted*. This was applied to three trees in each lot, while the remaining trees were left as checks. On the 20th of June they received the third treatment, and in the same manner as that on 22nd May. The apples were carefully hand-picked and graded, the per cent of wormy fruit in a representative bushel of each class being ascertained by actual count, and the total percentages deduced therefrom.

FORMULÆ.

The following are the formulæ used in the experiment detailed above, of which the individual results are shown in the tables.

1. SOLUTION.

Carbonate of Copper.....	1½ oz.	/
Ammonia.....	1½ pts.	
Water.....	25 galls.	
Paris Green (added in second application)	1¾ oz.	

2. SUSPENSION.

Carbonate of Copper.....	1½ oz.
Water.....	25 galls.
Paris Green (added in second application)	1¾ oz.

A slightly increased quantity of Paris green was used in this instance, as without the ammonia solvent there is less danger of injuring the foliage.

3. UNWASHED SOLUTION.

Has the constituents of No. 1 present in the same quantities.

In Bulletin No. 10 the following directions were given, which it is thought well to repeat here :—

HOME MANUFACTURE OF COPPER CARBONATE.

As the precipitated form of carbonate of copper is not always obtainable from druggists, directions are herewith appended for the easy preparation of this material at a cost much less than the usual wholesale price.

In a vessel capable of holding two or three gallons, dissolve 1½ pounds of copper sulphate (blue vitrol) in 2 quarts of hot water, using the crystalline form. This will be entirely dissolved in fifteen or twenty minutes. In another vessel dissolve 1¾ pounds of sal soda (washing soda), also in 2 quarts of hot water. When completely dissolved pour the second solution into the first, stirring briskly. When effervescence has ceased fill the vessel with water and stir thoroughly; then allow it to stand five or six hours, when the sediment will have settled to the bottom. Pour off the clear liquid without disturbing the precipitate, fill with water again and stir as before; then allow it to stand until the sediment has settled again, which will take place in a few hours. Pour the clear liquid off carefully as before, and the residue is *carbonate of copper*. Using the above quantities of copper sulphate and sal soda, there will be formed 12 ounces of copper carbonate.

Instead of drying this, which is a tedious operation, add four quarts of strong ammonia, stirring in well; then add sufficient water to bring the whole quantity up to 6 quarts. This can be kept in an ordinary two-gallon stone jar, which should be closely corked.

FORMULA.

Each quart will contain 2 ounces of the carbonate of copper, which, when added to 25 gallons of water, will furnish a solution for spraying, of the same strength and character as that obtained by the use of the dried carbonate, and one which can be prepared with little labour, and kept ready for use throughout the season.

CARBONATE OF COPPER IN SUSPENSION.

When the carbonate is to be used in suspension, instead of adding the ammonia to the sediment, add water until the whole quantity is made up to 6 quarts. Stir this thoroughly until the sediment is completely suspended (entirely mixed throughout) and pour the thick liquid into a suitable jar, when it will be ready for use.

Before using shake the contents thoroughly, so that all the sediment may be evenly distributed in the water. Pour out a quart of the thick fluid and mix in the 25 gallons of water. The *unwashed solution* is prepared by simply pouring the two solutions together (copper sulphate and sal soda), and when the effervescence has ceased, pouring off the top or supernatant liquid; add four quarts of strong ammonia, stirring in well, then add sufficient water to bring the whole quantity up to 6 quarts. The formula is the same as that already given above.

The *unwashed suspension* is prepared in the same way, water taking the place of ammonia in making the quantity up to 6 quarts.

GRAPE MILDEW.

As stated elsewhere, grape mildew (*Peronospora viticola*) was effectually kept in check in the farm vineyard by three applications of ammoniacal copper carbonate, as recommended in Bulletin No. 10.

With the co-operation of his Honour Judge Mosgrove, an extensive grape-grower on the Richmond road, a series of experiments were planned and designed: (1) To show the relative effectiveness of different strengths of copper carbonate in solution and in suspension; (2) To show the benefit of spraying the vines, immediately on being uncovered, with copper sulphate.

The results, owing to the appearance of an unlooked for and unexpected disease (*Sphaceloma ampelinum*), have not been conclusive, and the work will be continued another season, when it is hoped the objects of the experiment will be attained.

Little if any mildew appeared in any case upon the fruit of those treated, though in a few instances the foliage was affected.

The first application was made on 22nd May, using a solution of copper sulphate, 1 lb. to 25 gallons of water. This was followed by four applications of the ammoniacal copper carbonate, made on the following dates: 2nd, 13th and 30th June and 31st July.

While this treatment was generally satisfactory in the case of the downy mildew, it was not so with "bird's-eye rot" (*Sphaceloma ampelinum*). In order to rid the vineyard of this pest, treatment was commenced this fall by carefully burning all rubbish and trimmings, and spraying one-half of the vines with a strong solution of copper sulphate, the other half with iron sulphate. Next spring, on the vines being uncovered, they will be again treated with the copper and iron solution, followed by dilute Bordeaux mixture and ammoniacal copper carbonate, used in a comparative way. It is hoped that by this treatment both the bird's-eye rot and downy mildew will be controlled.

GOOSEBERRY MILDEW.

Comparisons were made as to the effectiveness of copper carbonate, in solution and suspension in different proportions, and potassium sulphide used also in varying quantities. While the disease (*Sphaerotheca mors-uvæ*) was not as prevalent as usual this year, yet on the European varieties and seedlings it was sufficiently active to make the results quite conclusive. These are summarized as follows:—

Five applications were made in each case :

1. Potassium sulphide, 1 oz. dissolved in three gallons of water, gave the best results, keeping the foliage practically healthy and free from disease during the whole season.

2. Potassium sulphide, 1 oz. to four gallons; stood second in order of effectiveness.

3. Ammoniacal copper carbonate, 3 oz. to twenty-five gallons; stood third; fairly effective.

4. Suspension mixtures of copper carbonate did not give a sufficient degree of immunity to pay for cost of materials and time of application.

REPORT OF THE CHEMIST.

(FRANK T. SHUTT, M.A., F.I.C., F.C.S.)

WM. SAUNDERS, Esq.,
Director Dominion Experimental Farms,
Ottawa.

SIR,—I have the honour to submit herewith the fifth annual report of the Chemical Department of the Dominion Experimental Farms.

The analytical data contained in the following pages and obtained in the laboratories of the experimental farms embrace the results of work of a very varied character. Assistance both by experiment and analysis has been rendered during the past year to the numerous branches of agriculture, and it is confidently hoped that the information here found will prove of much practical benefit to the dairymen, the horticulturists and the general farmers throughout the Dominion.

The increasing interest taken by farmers in this department of the Experimental Farm system has resulted in an increased demand upon our time, both in the matter of analysis of samples sent for examination, as well as in answering enquiries from those seeking advice and information. With regard to the latter, it will suffice to say that over 1,200 letters have passed, in 1891, between myself and correspondents on matters pertaining to the science and practice of agriculture. Respecting the accumulation of samples of substances forwarded for analysis by farmers, I can but repeat what I have said in a former report. Although a large number of these have been examined and reported upon, as the present report testifies, many still await analysis for lack of time. In addition, there are the experiments and analyses planned and carried out by this department. The results of this original research I deem of great value to the Dominion as a whole. It is a branch of the work I am anxious to develop more and more as time and assistance permits. All this points to the fact, that in order to cope successfully with the work of the chemical department in the future, further skilled help will be required in the laboratories.

During the year addresses have been delivered at several conventions and meetings of farmers' institutes on agricultural topics. The large attendance at these meetings, and the keen interest taken by those present, as evinced by the lively discussions which usually follow the addresses, clearly show that the farmers are not only eager to learn, but also ready to avail themselves of these opportunities for increasing their knowledge in agriculture.

For the convenience of readers and for ready reference, I have classified the matter in the present report, according to the plan adopted last year. The following brief epitome outlines the subjects treated in the following pages:—

PART I, SOILS.—Twenty-four soils have been analysed during the past year. Many of these were virgin soils and included samples taken from the surface and subsoil. These represent the character of the soil over comparatively large areas. Among those examined were several specimens of so-called alkali soil from Manitoba and the North-West Territories. Sufficient data have not as yet been obtained to enable a complete diagnosis of the cause of the apparent barrenness or poisonous nature of these soils, nor can we as yet advise with confidence any treatment for their amelioration. The remarks on the work done in this connection, however, will, it is hoped, assist in some measure, by outlining probable methods for their improvement. The investigation into the character of these soils will be continued during the coming year.

With regard to the virgin soils of Manitoba and the North-West Territories in general, I may state that the chemical data emphatically point to their excellence and great fertility.

Some soils from the district of Muskoka, as well as others from Ontario, Quebec and Nova Scotia, have also received attention.

It would be well to emphasize that more analytical results are required before inferences as to the relative fertility of districts in Canada can be drawn. In the meantime the analyses here given, together with the deductions made, will serve to indicate the general character of many classes of our soils, and assist in suggesting the most economical and profitable means for their improvement.

PART II. NATURAL FERTILIZERS.—There is here included the analyses of twenty-seven samples of swamp muck, mud and peat from different parts of Canada. Their composition is tabulated and their use and value as fertilizers explained. Analyses of eel grass and of spent tan-bark, made at the request of correspondents, are here given. The results of an examination of a sample of gas liquor are also stated.

PART III. FODDERS, PLANT AND ANIMAL PRODUCTS.—*Roots.*—The chemical examination of roots has formed a part of this work during the past season, and this chapter comprises the analyses of several varieties of carrots, turnips, mangels and sugar beets grown on the experimental farm at Ottawa. Their composition is given in tabular form, which allows of an easy comparison of their food values. The useful and important functions of roots as part of cattle rations are also considered.

Fodder Corn.—The results of experiments with fodder corn carried out at the experimental farm, Ottawa, in conjunction with the Dairy Commissioner, are given. These corroborate and supplement those obtained in 1890, which were published last year in Bulletin 12 of the Farm series. The attention of farmers and dairymen may be specially directed to this work. Further experiments with analyses of fodder corn and ensilage are in progress.

Sugar-beets.—The investigation that has continued for the past three years with a view of ascertaining the value of this crop for sugar manufacture has received further attention. Sixty-four samples of this season's roots are reported on. The average of 21 samples of the same variety grown at Ottawa was 14 per cent of sugar. In another table will be found figures showing the effect of earthing up the roots while growing. This practice resulted in an increased sugar content of 2.2 per cent over that in the same varieties which had only received ordinary field culture. In a third table are the analyses of beets grown at the branch experimental farms and roots sent in from various parts of Ontario.

Sorghum.—A short chapter on sorghum grown at Ottawa is added.

Babcock Method.—In June last a bulletin was issued on the Babcock method for ascertaining the amount of fat in milk. It contained analytical data obtained in our laboratories proving the accuracy and reliability of this process. As the value of milk depends chiefly on the amount of butter-fat it contains, it becomes at once apparent that any method by which this could be easily and cheaply determined would prove itself most valuable in placing the purchase and sale of milk on a good business foundation. The importance of this subject I consider warrants the insertion of the principal facts and deductions already published. Further experimental work is in progress, with a view to lessening the time employed in making the test by the analysis of composite samples once or twice a week.

Condensed Milk.—In view of the possible development of the condensed milk industry in Canada, several brands of this article were carefully and thoroughly examined.

PART IV. MISCELLANEOUS EXPERIMENTS AND ANALYSES.—*Well Waters.*—In previous publications we have impressed upon farmers and dairymen the necessity of pure water for their stock. During 1891, 29 samples of well-water were sent for examination. The reports on these are here presented.

Prevention of Smut.—Further results of experiments inaugurated two years ago for the treatment of wheat for the prevention of hard smut by certain solutions are here reported. The effect on the vitality of the wheat germ by iron and copper

salts, stated in last year's report, have been corroborated, while, in addition, the experiments made this year go to show that copper sulphate and "agricultural blue-stone" are far more efficacious for the prevention of the development of smut than sulphate of iron.

Fertility of Soil not injured by Spraying.—An impression was going abroad that the copper solutions used in spraying for fungus diseases was affecting disastrously the fertility of our soils, and an article to this effect lately appeared in one of our leading papers. I have, therefore, written a short chapter, discussing the nature of the application and the chemical changes involved. These all go to show that the assertion that the soils are "poisoned" by this useful operation is fallacious.

Insecticides with Soap Solution.—There are many cases in which it is desirable to apply the insecticide Paris green in soap solution. The question then arose: Is the effect of Paris green weakened by the soap? As I was requested to give an opinion on this matter, I undertook a number of experiments, the results of which are enumerated in this report. They show that the efficacy of this insecticide is not materially affected by being applied in soap solution.

Sprayed Apples are not poisonous.—The last chapter of this report contains the results of an experiment undertaken to afford scientific proof for the refutation of the statement that "apples sprayed for codling moth are dangerous to health, if not positively poisonous, owing to the presence of arsenic of the Paris green used in the operation of spraying."

Some few months ago a statement to this effect appeared in an English horticultural paper. This report received wide circulation in the press generally, and was calculated to do much harm to the Canadian export apple trade. I therefore made a very careful analysis of apples that had been twice sprayed (Paris green 1 lb., water 200 gallons), and though the process employed was one of extreme delicacy, not a trace of arsenic could be detected. This result gives additional support to the statement that the suspicion that Canadian apples are poisonous is entirely without foundation. The publication of this positive proof of the absence of arsenic in these sprayed apples should serve to assure those in England, as well as Canadian horticulturists and apple exporters, that this practice, so useful in preventing the ravages of the codling moth, does not result in poisoned apples.

I again with very much pleasure record my thanks and indebtedness to Mr. Adolph Lehmann, B.S.A., the assistant chemist, for the valuable aid he has rendered me. Mr. Lehmann has devoted himself most assiduously to the work of the department since his appointment, and many of the analytical data contained in this report are the result of his ability and industry.

I have the honour to be, Sir,

Your obedient servant,

FRANK T. SHUTT,

Chemist, Dominion Experimental Farms.

CHEMICAL LABORATORIES,
CENTRAL EXPERIMENTAL FARM,
OTTAWA.

PART I.

SOILS.

The factors upon which the fertility of a soil depend are many. The amount of plant food and its degree of solubility, the mechanical texture or tilth and the climate (temperature, amount of rain-fall, &c.) are the chief. It is very evident, therefore, that chemical analysis alone cannot give all the information necessary to a full knowledge of a soil's productiveness, but that it is exceedingly useful to that end will be apparent to those who have given this important subject careful thought. A good mechanical condition and a favourable climate would prevail nothing for the growth of crops unless those elements necessary for plant sustenance were present. Chemical analysis gives the composition of a soil or the amount of these fertilizing elements; unfortunately, in the present state of the science, it can give us but little exact information as to the degree of solubility or assimilation of such.

The amounts of nitrogen, potash and phosphoric acid, together with other elements of plant food of minor importance, as obtained by means of analysis, I propose to call the "total fertility" of a soil. The value of the knowledge of this "total fertility" in arriving at a soil's relative productive power and its more especial needs, will be apparent upon reflection. For, if on the one hand it proves a soil to be barren of any of those substances necessary for plant development, we know that certain manures must be added before profitable crops can be expected; if, on the other hand, a soil is shown to contain these materials in abundance, we may be sure that with proper working and favourable climatic condition, this food will be converted into assimilable forms. The matter of soil analysis is one of great importance. Unfortunately, it is one involving a very large amount of skilled labour, as the operation is not only lengthy, but must be performed with the greatest care, from the fact that the most fertile soils contain plant food only in comparatively small quantities, and that the differences in these quantities between rich and poor soils are represented by fractions of a per cent. We are, therefore, unable to undertake the analysis of all the samples that may be sent for examination, and are obliged to restrict this work to those specimens of virgin (unmanured and uncropped) soils that are representative of large districts in the Dominion. Several samples, however, of "alkali" and other soils, which demanded special attention, have, in addition to these virgin soils, been examined. In all, twenty-four samples have been analysed during the past year, the composition of which is fully set forth in the following table. Several enquiries have been received by me from Great Britain regarding the composition of our soils, and it is, therefore, probable that this work done in the laboratories of the Farm may be found useful for those in the old country who are considering the various provinces of the Dominion as fields for emigration. It must be distinctly understood that the data here given are altogether too meagre to form the basis of any broad conclusion as to the relative fertility of the lands of any district, yet they may serve in the meantime, and until further work of this character is done, to indicate the nature of some of our soils.

Alkali Soils.

Three specimens of so-called "alkali" soils from the North-West Territories, have been carefully analysed. In each instance the sender stated that such occurred in patches—sometimes only a few feet square, sometimes larger—surrounded by land of excellent fertility. The earth of these spots or patches though black when moist and first turned up, dries out more or less white. In these places the seeds of roots and cereals will germinate, but the plants soon dwindle away, the former attaining only the size of a gooseberry, and the latter turning yellow and dying at the height of a few inches. Mr. Bedford, Superintendent of the Manitoba experimental farm, writes that these patches generally occur in low lands with clay

subsoil, which possess very inadequate drainage. My examination of this class of soils is not yet complete, and experiments are now in progress that may result in throwing some light as to their proper treatment. But as far as the work has progressed it would seem—at all events in those analysed—that a large excess of alkali (salts of soda) is not present. There can be no doubt that the amount of soluble inorganic matter, including alkali if present, varies in the upper strata of soil according to the temperature and extent of rainfall, but it is at least worthy of note that those examined, and which have been held to possess alkali, should contain such small quantities of these salts of soda. Whether this may in part be due to the season at which the samples were collected, I am unable to say. In two of those examined, Nos. 4 and 7, there are notable percentages of sulphate of magnesium (epsom salts), and I am now experimenting to ascertain if this salt in quantities such as have been found, is deleterious to vegetation.

The amelioration of such soils is a subject of great importance to the farmers in many parts of the North-West Territories and Manitoba, and rightly forms an object for our investigation. As the alkali is soluble in water, a thorough drainage system should be resorted to wherever practicable. I am firmly of the belief that this would be the most efficacious method of getting rid of the poisonous material. Deep ploughing should be practised. Thorough tillage prevents surface evaporation and the accumulation of alkali near the surface. A heavy dressing of barn-yard manure, animal refuse or other highly nitrogenous organic matter, is said by many to materially improve these alkali patches, inducing a vigorous growth. Again, by others gypsum is strongly recommended, though I have not received any strong evidence of its efficacy. Where the alkali is carbonate of soda, gypsum is, however, beneficial in converting this caustic salt into one less deleterious to vegetation. Further work and experience it is hoped will enable us to give more definite information regarding the improvement of these soils, which in other respects would be termed very fertile.

Constituents of Soils.

In Part I of my last report (1890) is to be found a short history of soils in general, as well as an account of the changes which are continually taking place in them due to fermentation processes and atmospheric agencies. I therefore now append only a very brief statement of the amount and functions of the more important elements of plant food in soils, reserving a notice of the special characteristics of the specimens analysed when considering the soils individually.

The most important inorganic constituents of a soil are potash and phosphoric acid. These, together with nitrogen, are known as the *essential elements* of plant food.

Potash—derived principally from the decomposition of feldspathic rocks, *e.g.*, granite—exists chiefly in combination with silica in a more or less soluble condition. The limits of potash in a soil lie between a mere trace and about 2 per cent. A good agricultural soil contains between .25 per cent and 1 per cent. Clay soils, usually, are the richest in potash.

Potash, as a fertilizer, is of special value to clover, pease and other leguminous crops; potatoes, beets, cabbage, grasses and leafy plants in general are also benefited by it. It should form a large part of manures for orchards and all fruit trees.

Phosphoric acid, combined principally with lime, is found in all fertile soils. Like potash, it has been derived from the rock that originated the soil, and consequently is not constant in quantity. It never exceeds 1 per cent, even in the richest soils, and the average in good soils is about .2 per cent.

It benefits chiefly root crops, *e.g.*, turnips and beets, and in conjunction with nitrogenous manures is very effective for the cereals, promoting an early maturity and an increased yield.

Lime.—Of the inorganic elements of minor importance, lime is the principal. It affords food directly to the plant and liberates in the soil potash and nitrogen pre-existent in insoluble forms. Many consider that less than 1 per cent shows a soil to be deficient in lime, and calcareous soils are almost invariably fertile.

No special mention need here be made of the other mineral constituents, as most soils contain sufficient for all the requirements of farm crops.

Nitrogen is the element of value in the organic portion of a soil. It there exists, for the most part, in forms from which it can be but slowly absorbed by plants. By a process of fermentation, known as nitrification, it is rendered assimilable. The presence of lime (carbonate of lime) appears to assist in this useful operation, especially when the ground is sufficiently open for air to permeate it. Moisture and warmth are also necessary to encourage the growth of the microscopic ferment which causes the formation of nitrates from nitrogenous material.

Very rich soils contain from .5 per cent to 1 per cent of nitrogen; good, fertile soils possess on an average from .15 per cent to .25 per cent.

Nitrogen is essentially the fertilizer for cereals, especially when associated with phosphoric acid. An excess of nitrogen, however, promotes a rank growth of straw.

The following notes regarding the source and character of the soils examined, will be found useful when studying the analytical data in the annexed table:—

No. 1. A greyish-black soil of fine texture from the valley of the Fraser River, sent by Wm. Tasker, of Ladner's Landing, B.C. It has resulted from the deposition of the silt brought down by this river. An area of over 30 square miles is said to be covered by soil of this origin and character.

Both from chemical analysis and physical appearance, this soil should be an extremely fertile one, provided other conditions are favourable. It possesses potash, phosphoric acid and nitrogen in quantities considerably above those in rich, fertile soils.

No. 2. A surface soil, from Yorkton, N.-W.T., forwarded by Mr. R. Mitchell, of Carlow, Ireland, who had visited the larger portion of the North-West Territories, with the view of ascertaining the relative advantages offered there to settlers. It is a black, sandy loam, containing a large amount of organic matter and nitrogen. In potash and phosphoric acid it also ranks with the most productive soils.

No. 3. Subsoil to the preceding sample.

A knowledge of the composition of a subsoil is valuable as an aid to good practice. It is often beneficial to mix by deep ploughing the subsoil with that of the surface, and again there are many instances in which such would do more harm than good. The soil under discussion appears to be one fairly rich in the organic and inorganic elements of plant food. The surface soil, derived from the subsoil plus the remains of decayed plants, is richer, as might be expected, in organic matter and nitrogen; yet we find here these present in quantities equalling those possessed by many surface soils held to be fertile. It contains more lime, but less phosphoric acid and potash, than the soil resting upon it. These in the latter are probably more readily available for plant nutrition.

No. 4. A so-called alkali soil, forwarded by John C. Kinghorn, of Saitecoats, N.-W.T. A greyish-black soil, containing all the constituents necessary for plant growth, in good quantities. As before remarked alkali (*i.e.*, salts of soda) are not present in excess, and the cause of the trouble is not very evident.

No. 5. Also an alkali soil, from Geo. W. Stewart, Moosomin. A little darker, but otherwise very similar in appearance to No. 4. The absence of sulphuric acid and chlorine—save in traces—in a soil of this character, is worthy of remark. In lime and magnesia it is considerably lower than the preceding specimen, while in soda it possesses a like amount. In fertilizing constituents it is almost equal to the above subsoil.

No. 6. Sent by Wm. Walsh, Sharp Hill Creek, Calgary, N.-W.T. I consider that this should be a very fertile soil, provided that climatic influences are favourable. The analytical data show it contains more than average quantities of the requisite elements of plant food.

No. 7. An alkali soil from 3 miles north of Brandon, Manitoba. Somewhat lighter in colour than Nos. 4 and 5. It is very low in potash and phosphoric acid, but of medium quality as regards nitrogen. It possesses sulphuric acid, chlorine, magnesia and soda in more marked quantities than the soils of this character already considered. The lime, if combined with the carbonic acid, would be equiva-

lent to 13.39 per cent of carbonate of lime, leaving the sulphuric acid and magnesia to form 3 per cent sulphate of magnesium or epsom salts.

It is gratifying to note that chemical analysis bears out very emphatically the impression that the soils of Manitoba and the North-West Territories generally are most fertile, and possess in abundance all those elements necessary to large crop yields.

No. 8. This sample and the four following were sent by Mr. G. S. Wilgress, B.A., barrister of Huntsville, Muskoka, a gentleman who is interesting himself in the agricultural welfare of that district. This soil is from the farm of Mr. Andrew Hart, lots 5 and 6, concession 6, township Sinclair. It is a loose, sandy loam and has never been cropped. The subsoil of hard pan is found at a depth of from 6 to 12 inches. The land was cleared about ten years ago. This is a very dry soil, containing little lime, and less than the average in potash. Phosphoric acid is present in fair quantities. It is only moderately rich in organic matter and nitrogen.

A heavy application of wood ashes, to supply potash, lime and phosphoric acid, would greatly benefit this soil. In the absence of barn yard manure, the turning in of some green crop—preferably clover, or if this will not grow, rye—would improve the absorptive and retentive qualities of this soil, and at the time supply available nitrogen.

Nos. 9 and 10. From lot 17, concession 4, township of Chaffey, the farm of Mr. James Down. Sandy loam, about 15 inches in depth, underlaid by hard pan. No. 10 is taken 12 inches below the surface. Soil was originally timbered with pine and other soft woods, together with maple and birch. It was burnt over five years ago, after which hazel, cherry and other small trees grew. The ground was cleared in 1890, and has never been manured. These soils were taken during a season of drought, and to this fact the low percentage of water may be largely attributed. While in no sense a calcareous soil it cannot be considered deficient in lime. The subsoil contains very much less than the surface soil. The potash, alike in quantities in both soils, is low. In phosphoric acid also they are below the average. The organic matter and nitrogen in No. 9 are lower than in the preceding sample. In the subsoil they are present to about one half the amount of those in the surface soil.

Nos. 11 and 12. From lot 23, concession 14, township of Franklin, the farm of Rev. R. N. Hill. Ground, originally timbered with mixed hardwoods and hemlock, has never been ploughed, but scuffled between the stumps. One crop of wheat, one of oats and two of hay have been taken off, but no manure applied.

The surface soil is a light-grey loam, somewhat clayey in texture. It is exceptionally high in potash* and fair in phosphoric acid, but very low in nitrogen. The sub-soil is very much poorer in the elements, nitrogen practically being absent. In both soils the lime is comparatively high for Muskoka soils.

The analytical work in this series is not yet quite completed, but from the data so far obtained the general character of the Muskoka soil appears to be light and sandy.

The addition of muck would greatly improve their tilth and at the same time add much nitrogenous plant food. As suggested when remarking upon No. 8, wood ashes plentifully supplied and the turning in of some green crop would materially enhance their fertility.

Nos. 13, 14 and 15 are from lot 11, concession 2, township of Russell, county Russell, the farm of Norman E. Otto.

No. 13, a virgin soil (uncultivated and unmanured) is a grey sandy loam with a fair proportion of nitrogen and phosphoric acid. The potash is low.

No. 14. Is a light yellowish sandy subsoil, containing little more than traces of organic matter and nitrogen.

* The exceptional amount of potash (58 per cent) in this specimen may possibly be due to the accidental presence of ashes produced in clearing the land.

No. 15. Cultivated surface soil, very similar in colour and texture to No. 13. The nitrogen and organic matter are somewhat lower than those of the virgin soil. In phosphoric acid it is deficient.

No. 16. A loam from Mr. Hiram Walker, Walkerville. A fair soil in composition, with the exception of phosphoric acid, which is low, and of lime in which it is particularly deficient.

No. 17. From J. N. Poirier, Victoriaville, Arthabaska County, P.Q. A sandy loam of fair quality, but rather low in mineral constituents.

No. 18. Subsoil to the above and very similar to it is the proportion of potash and phosphoric acid. For a subsoil it may be considered high in nitrogen.

No. 19. Also sent by Mr. Poirier. It is a black muck of average quality. As a soil it contains an abundance of nitrogen, though this is only slowly rendered assimilable, and a fair amount of phosphoric acid. In potash it is remarkably deficient. The best fertilizer to improve the composition of this soil is wood ashes, which contain from 4 per cent to 9 per cent of potash and about 2 per cent of phosphoric acid; leached ashes are very much poorer in potash. An application of from 60 bushels to 150 bushels to the acre of fresh ashes, according to the nature of the crop about to be grown, would give good results. The texture of this soil would be benefited by a heavy dressing of clay, sand or other inert matter.

No. 20. Subsoil, underlying the above. A greyish sandy soil, containing little potash, but fairly rich in nitrogen. Though not contributing much plant food, its admixture with the surface soil (No. 19) would very materially improve the latter by rendering it heavier.

No. 21. A pinkish red sand, containing very little organic matter and only traces of nitrogen. The amounts of the mineral constituents, including potash and phosphoric acid, are very small.

No. 22. A brownish red, sandy soil, considerably richer in organic matter and nitrogen than the preceding sample. It is rich in potash, though phosphoric acid is present only in small quantities.

Nos. 21 and 22 were from St. Adelaide de Pabos, P.Q., and were forwarded by the Rev. Joseph Dechamplain.

No. 23. A surface soil from the farm of A. S. Ross, Hansford, Cumberland County, N.S. A brown, sandy soil, very poor in nitrogen and phosphoric acid.

No. 24. Sent by John Gillis, South-west Mabou, N.S. A brown, sandy soil, having a fair amount of organic matter and nitrogen. It is comparatively high in potash and low in phosphoric acid. Lime is practically absent.

ANALYSES of Soils (Air-dried), 1891.

Number.	Soil.	Locality.	Water.	Organic Matter.	Clay and Sand.	Oxide of Iron and Alumina.	Lime.	Magnesia.	Potash.	Soda.	Phosphoric Acid.	Soluble Silica.	Sulphuric Acid.	Chlorine.	Carbonic Acid (undetermined.)	Total.	Nitrogen.	Clay.	Sand.
1	Surface	Ladner's Landing, B.C.	6.66	16.39	67.32	7.70	.47	.12	.49	...	.27	.02	...	...	.54	100.00	.576	21.55	45.77
2	do	Yorkton, N.W.T.	5.32	13.27	71.80	7.69	.06	.19	.46	...	.20	.09	...	...	.92	100.00	.477	11.56	60.24
3	Sub-soil	do	5.90	7.70	74.07	9.04	.71	1.45	.40	...	.09	.12	...	...	.52	100.00	.123	9.62	64.45
4	Surface	Saltcoats, N.W.T.	5.91	12.74	64.68	7.52	.72	2.63	.32	.08	.20	.11	.17	.02	2.90	100.00	.538	14.03	50.65
5	do	Moosomin, N.W.T.	5.23	11.18	75.16	5.12	.90	.87	.29	...	.11	.11	traces	...	.95	100.00	.434	15.13	60.03
6	do	Sharp Hill Creek, Calgary, N.W.T.	4.90	11.63	74.09	6.84	.88	.63	.42	...	.16	.17	...	...	.28	100.00	.425	9.69	64.40
7	do	3 miles north of Brandon, Man.	4.07	8.55	61.63	6.00	7.48	2.77	.04	.32	.05	.09	2.08	.15	6.77	100.00	.281	4.91	56.72
8	do	Lots 5 and 6, Con. 6, Tp. of Sinclair, Muskoka, Ont.	2.42	8.53	82.13	6.30	.10	.26	.11	...	.25	.07	...	...	...	100.18	.181	9.97	72.16
9	do	Lot 17, Con. 4, Tp. of Chaffey, Muskoka do	1.53	6.69	85.60	4.98	.39	.31	.07	...	.10	.06	...	...	.27	100.00	.137	15.84	69.76
10	Sub-soil	do	1.80	3.44	88.65	5.34	.19	.14	.08	...	.17	.22	...	...	...	100.01	.073	11.90	76.73
11	Surface	Lot 23, Con. 14, Tp. of Franklin, Muskoka do	5.79	5.95	72.62	13.22	.72	.08	.58	...	.17	.15	...	...	.72	100.00	.097	13.70	58.92
12	Sub-soil	do	7.26	3.44	74.64	12.88	.62	.23	.02	...	.08	.22	...	...	.61	100.00	traces	13.18	64.46
13	Surface	Lot 11, Con. 2, Tp. of Russell, Ont. do	3.58	6.06	85.65	3.62	.39	.37	.06	...	.21	.09	...	...	.01	100.03	.139	25.86	59.79
14	Sub-soil	do	1.13	1.38	90.22	5.71	.58	.69	.14	...	.10	.04	...	...	...	100.00	.012	22.09	68.13
15	do	do	4.89	4.88	84.03	4.86	.57	.49	.10	...	.09	.12	...	...	...	100.03	.136	30.96	53.07
16	Surface	Walkerville, Ont. do	1.55	6.39	83.35	8.10	.02	.66	.33	...	.12	.09	...	...	...	100.61	.233	11.16	72.19
17	do	Victoriaville, Arthabaska, Que. do	7.85	8.00	77.20	5.87	.35	.02	.15	...	.16	.32	...	...	.08	100.00	.273	16.63	60.57
18	Sub-soil	do	4.98	5.19	81.27	7.35	.28	.47	.16	...	.17	.16	...	...	...	100.03	.175	13.27	68.00
19	Surface	do	16.65	71.64	3.14	1.78	4.22	.20	.04	...	.22	.29	...	...	1	100.00	1.355	...	...
20	do	do	4.09	5.95	82.18	6.13	.67	.03	.03	...	.31	.26	...	...	.35	100.00	.178	15.34	66.84
21	Sub-soil	Stc. Adelaude de Palos, Que. do	.11	1.63	93.66	4.32	.06	.01	.06	...	.04	.05	...	...	.06	100.00	traces	12.28	81.38
22	do	do	2.32	7.37	83.17	5.99	.15	.14	.43	...	.07	.04	...	...	...	100.08	.210	1.87	81.30
23	do	Hansford, Cumberland, N.S. do	4.36	3.32	90.87	3.97	.05	.17	.16	...	.06	.02	...	...	.02	100.00	.089	15.13	75.74
24	do	South West Mabou, N.S. do	2.32	6.81	83.68	6.54	traces	.20	.36	...	.09	...	...	...	...	100.00	.297	35.86	47.82

PART II.

MUCKS, MUDS AND PEATS.

In previous reports I have taken occasion to point out and emphasize the value of this class of natural fertilizers; but on account of the importance of the subject, and in order to make the analytical data here given intelligible and easy of comprehension, I propose to again briefly discuss the origin, the uses or application, and the value of these substances.

MUCK.—Every true muck consists largely of semi-decayed vegetable matter or humus—the accumulated remains of plants, chiefly aquatic, of many generations. These well-known deposits of swamp muck are the result, principally of the continuous action of water on the fresh and green vegetable matter, converting it into a uniform black or brown mass. The lack of structure in the matter deposited increases with decay. In the upper layers are to be found the roots of plants still growing on the surface, together with much undecomposed woody tissue. The lower portions of the muck deposits show, as a rule, but few roots, the process of decomposition having proceeded farther, destroying all structure. A black or brown material results, light as to weight and powdering easily when dry.

In some degree a measure of the value of a muck may be obtained from its colour, its structure, and the amount of ashes left when a small sample is burnt. A good muck should be dark brown or black, structureless (that is not full of undecayed woods and roots), light and easily powdered when dry, and should yield only a small quantity of light ashes when burnt.

As a supplier of plant food, muck is chiefly valuable for its nitrogen, contained in the organic matter or semi-decomposed plant remains. Under favourable circumstances it yields this nitrogen as food for farm crops.

But in addition to being a nitrogenous fertilizer, its application to many soils improves their tilth or mechanical texture. If a soil be too light or too heavy, the best results cannot be obtained, though all the elements of plant food be present. Muck has the effect of making heavy soils porous, allowing air and water to freely permeate and the roots to find an easy passage. For light and sandy soils and those poor in organic matter muck is most beneficial, improving their retentive powers for moisture and fertilizing elements. For rich soils that require lightening it forms a valuable and cheap substitute for barn-yard manure, on account of its bulk and lasting qualities.

By its further decomposition in the soil, carbonic acid gas is developed. This when dissolved in the soil-water assists in setting free mineral plant food hitherto in a condition unavailable and is probably of service in other ways. The germs of nitrification which render soluble and assimilable the nitrogen of muck, likewise convert and make soluble that in the nitrogen-holding substances in the soil, so that both the mineral and organic plant food of a soil are made more readily available for crops by the application of muck.

As might be supposed, all mucks are not equally valuable. Those which contain large amounts of clay and sand will be poor in organic matter and consequently in nitrogen. Again, as an inspection of the following table will show, the proportion of nitrogen in the organic matter of mucks is very variable. This is partly due to the nature of the vegetation from which the muck has been formed, partly to the degree of decay or fermentation that has taken place, and partly no doubt, in some instances, to a leaching action of the water on the soluble nitrogen-holding compounds. The colour of muck is not an invariable criterion as to its quality; many of a brown colour contain a larger percentage of nitrogen than black samples, which appears contrary to the generally accepted opinion.

PEAT.—The difference between muck and peat is perhaps one more of degree than of kind. The vegetable matter of peat, usually present without admixture with clay and sand, has not decayed to the extent that it has in muck, and conse-

quently its nitrogen is not so available for plant food. Peat is composed largely of woody fibre, still undecomposed and still retaining its structure. Its derivation is not largely from aquatic plants, as in the case of muck, and its formation does not appear to have taken place with the presence of that large excess of water conducive to the development of swamp deposits. While not so valuable for immediate use, or as a compost, as muck, peat, by reason of its texture and absorbent qualities generally, offers itself as being particularly valuable for soaking up and retaining liquid manure.

Muds.—River and lake muds are formed by the gradual deposition of silt. They consist largely of inert matter—very fine clay and sand—with variable amounts of animal and vegetable *débris*. As a rule their percentage of nitrogen is not large. Their fine mechanical condition, however, often enhances their value.

Mucks, peats and muds, without further fermentation or decay, do not readily give up their nitrogen to growing plants. If applied to a soil without this previous fermentation, the immediate result, except what may be due to improved tilth, will not be a large one. The process there is a slow one, the rapidity, however, depending on the nature of the soil, the amount of moisture, and the temperature. Favourable conditions are a fairly light soil, and damp, hot weather.

It is as a compost that the full benefit of mucks may be obtained. Such may be made by mixing it with barn-yard manure, wood ashes, dissolved bone or garden and house refuse, and allowing them to heat together. By this means the nitrogen becomes more and more soluble, and, therefore, of greater use for the plants.

As already stated, peat and muck are excellent absorbents for liquid manure in stables, cow houses, pig pens, &c. After being used for this purpose, and mixed with some of the more solid manure, the mass should be allowed to ferment in a heap, being from time to time turned over. In this way much fertilizing material that might go to waste is preserved, and by the addition of the nitrogen of the muck to that of the manure, a most valuable and rich fertilizer is obtained.

During the past year twenty-seven specimens of these fertilizers have been examined. They were obtained in the provinces of Ontario, Quebec, New Brunswick, Nova Scotia and Prince Edward Island.

They were accompanied by particulars as to source and amount of supply and a request for information as to their fertilizing qualities.

The following table gives the composition in full of the first five samples analysed. The results are calculated on the air-dried material.

ANALYSES of Muds and Mucks (Air-dried), 1891.

	No. 1.	No. 2.	No. 3.	No. 4.	No. 5.
Water.....	4.24	23.69	18.19	7.79	2.43
Organic and volatile matter.....	17.78	36.44	64.86	57.37	9.39
Insoluble residue (clay and sand).....	63.51	30.70	2.46	32.29	70.91
Oxide of iron and alumina.....	9.78	3.48	4.35	1.40	8.23
Lime.....	.30	2.63	4.99	.44	3.84
Magnesia.....	1.37	.38	.36	.24	.17
Potash.....	.12	.08	.23	.13	.58
Soda.....					.49
Phosphoric acid.....	.16	.30	.31	.22	.10
Soluble silica.....	.01	.30	.17	.11	.06
Sulphuric acid.....	2.66				
Carbonic acid, &c. (undetermined).....	.07	2.00	4.08	1.01	3.80
	100.00	100.00	100.00	100.00	100.00
Nitrogen (in organic matter).....	.504	1.135	1.820	2.045	.332
Pounds of nitrogen in one ton of air-dried material.	10.	22.	36.	40.	6.

The following brief explanatory notes with regard to the above are added :

No. 1. Marsh mud, forwarded by the Pioneer Publishing Co., Summerside, P. E. I. This is not a rich fertilizer, but represents an average sample of marsh or river mud. In potash and phosphoric acid it is somewhat low. The percentage of nitrogen is a little higher than that usually found in marsh lands.

No. 2. Is a black muck from the east riding of Peterborough, Asphodel township, and sent by Mr. F. Birdsall. The 30 per cent of insoluble matter is chiefly sand, which gives to the whole a fine loamy texture. The air-dried substance contains over 1 per cent nitrogen, or $22\frac{3}{4}$ lbs. to the ton, making a valuable nitrogenous fertilizer. It also contains over 4 per cent of carbonate of lime, a very useful material for many soils. Mr. Birdsall reports very good results from its use, and thinks it equal to barnyard manure sometimes found.

No. 3. A black muck from a cedar swamp, South Orillia. Depth of deposit, 3 feet to 6 feet, with a subsoil of quicksand. The swamp, partially burnt over, contains about 150 acres. The sample analysed is from the deposit on the farm of Mr. R. Lehmann, South Orillia. This may be considered a first-class muck. It possesses nearly 2 per cent of nitrogen (40 lbs. to the ton) and 9 per cent of carbonate of lime. The small quantity of inert, insoluble matter, is noticeable. In potash and phosphoric acid, it is a good average sample.

No. 4. Forwarded by Mr. Bayard Williams, of Long Reach, King's county, N.B.; obtained from the bottom of a lake. It partakes very much of the nature of a swamp muck, possessing over 40 lbs. of nitrogen to the ton. It should prove, both from its composition and texture, a valuable nitrogenous manure.

No. 5. A river mud from Lower Montague, P. E. I., sent by Mr. H. P. Robertson. The analysis shows it to be rather of the nature of a good soil than a manure.

It was found that time would not permit to make a complete analysis of all the samples that were sent in for examination. It was therefore determined to estimate only their most important constituents. Their relative values as suppliers of nitrogen is brought out in the subjoined table, which also affords further information regarding their constitution.

ANALYSES of Mucks, Muds and Peats (Air-dried), 1891.

No.	Nature of Material.	Locality.	Sender.	Nitrogen per cent.	Organic and Volatile Matter.	Sand and Clay.	Mineral Matter Soluble in Acid.	Water.	Pounds of Nitrogen in One Ton of the Air-dried Material.
6	Swamp or black muck...	Lot 21, Con. 3, Tp. Edwardsburg, Grenville Co., Ont.	J. Newman.	2.605	74.99	5.35	8.94	10.72	52
7	do	Muskegon, Perth Co., Ont.	David Gascho.	1.960	59.97	17.19	11.10	11.74	39
8	do	Kinnmount, Victoria Co., Ont.	Henry Cohen.	1.620	67.28	1.69	10.81	20.22	33
9	do	do	do	1.812	61.47	1.97	13.52	23.04	36
10	do	Almonte, Lanark Co., Ont.	W. B. Munro.	1.630	50.57	28.06	9.84	11.53	32
11	do	St. Adelaide de Pabos, Gaspé, P.Q.	Rev. Jos. Dechamplain.	2.300	68.68	8.13	13.16	10.03	46
12	do	do	do	1.615	66.33	9.57	5.85	18.25	32
13	do	Hatley, Stanstead, P.Q.	G. H. Burrage.	2.315	72.34	3.73	9.64	14.09	46
14	do	do	do	1.425	68.69	1.27	9.97	20.00	28
15	do	Chatham, Northumberland, N.B.	Hon. J. B. Snowball.	1.170	53.38	1.40	5.24	39.98	23
16	do	Long Reach, King's Co., N.B.	Bayard Williams.	1.525	88.16	.38	2.98	8.48	30
17	do	South-West Mabou, N.S.	John Gillis.	1.830	53.44	4.51	11.84	30.21	36
18	do	Bayfield, N.S.	Percy Randall.	2.650	72.12	6.94	8.46	12.48	53
19	do	Lower Freetown, P.E.I.	Joseph Taylor.	.985	85.26	2.89	.90	10.95	20
20	do	Roseneath, Cardigan, P.E.I.	Thos. J. Donahoe.	1.665	86.20	1.78	1.34	10.68	33
21	do	do	do	.615	88.32	1.65	.95	9.08	12
22	do	Georgetown, P.E.I.	F. G. Boyver.	.879	86.57	.80	1.08	11.55	17
23	Mud (?)	Pownal, P.E.I.	A. M. McRae.	1.520	49.30	15.64	8.40	16.66	30
24	Muskegon mud.	Lot 14, Grand River, P.E.I.	Geo. Monkley.	.161	6.35	49.67	42.44	1.54	3
25	Lake mud	Hansford, Cumberland Co., N.S.	A. S. Ross.	.803	23.79	55.24	12.57	8.40	16
26	Salt mud	Five Islands, N.S.	C. A. McBurnier.	.979	5.23	76.73	15.19	2.85	1
27	Peat.	Tp. Asphodel, Peterboro' Co., Ont.	F. Birdsall.	1.235	76.32	1.51	7.45	14.72	26

A brief description of each sample is here appended :

No. 6. A muck rich in organic matter and nitrogen, with little inert matter, clay and sand. As this was intended for use as a litter, the value of the resulting manure would be materially increased, owing to the additional nitrogen supplied by the muck.

No. 7. Very similar in appearance to the preceding sample, but contains only three-quarters the amount of nitrogen. Nevertheless, it is above the average in this important element.

Nos. 8 and 9. These specimens of swamp muck were taken from the surface (No. 8) and from 2 feet below (No. 9). They differ much in appearance. No. 8 shows a considerable amount of undecomposed woody tissue and is less granular than No. 9. Their analysis proves them to be very similar in composition.

No. 10. A powdery, loamy muck of brown colour, containing nearly 30 per cent of sand. It possesses about the average quantity of nitrogen found in fair samples.

Nos. 11 and 12. These are similar in the percentages of organic matter and insoluble residue they contain. The organic matter of No. 11 is not as rich in nitrogen and not as well decomposed as that of No. 12.

Nos. 13 and 14. These are from extensive deposits lying near each other. No. 13 is much darker and somewhat less woody and more granular than No. 14. Its value is considerably the higher of the two.

No. 15. As this was analysed when it contained nearly 40 per cent of water, it appeared to possess less nitrogen than many others which are really of less value. Calculated on the basis of 10 per cent of water, this sample would yield 35 lbs. of nitrogen to the ton. It may be considered a very fair average sample of black muck.

No. 16. Light brown in colour. Considering its small percentage of water, it must be regarded as low in nitrogen.

No. 17. Apparently well decomposed, black, and of good texture. If dried to 10 per cent of water it would contain 47 lbs. of nitrogen to the ton, which is considerably above the average.

No. 18. From a very large deposit. This muck contains the largest amount of nitrogen received during the past year. Evidently a very valuable nitrogenous fertilizer.

No. 19. A reddish brown sample. Although containing 85 per cent of organic matter, it yields only 20 lbs. of nitrogen to the ton.

No. 20. Although very fibrous, it possesses an average amount of nitrogen. It would do good service as an absorbent in stables.

No. 21. Taken from 4 feet below the surface, fairly dark and granular, but notwithstanding is very poor in nitrogen.

No. 22. A dark brown muck, considerably below the average in nitrogen.

No. 23. Sent as a sample of "mud," but evidently more of the nature of a swamp muck. Of a dark gray colour and somewhat sandy. A fair sample, slightly below the average quality.

No. 24. "Mussel mud." Consisted principally of the unbroken and undecomposed shells of mussels embedded in clay. It cannot be considered a nitrogenous fertilizer, but is of value to soils deficient in lime. The use and value of these mussel muds have been treated of at some length in former reports.

No. 25. "Lake mud." Not a rich fertilizer compared with swamp muck. Insoluble matter is over 50 per cent, and organic matter less than 25 per cent.

No. 26. "Salt mud." Exceedingly poor in nitrogen, consisting largely of insoluble residue. Is a reddish, compact, very earthy substance.

No. 27. A peat. A valuable material for bedding, owing to its texture and richness in nitrogen.

A considerable variation in the composition, and hence in the value of these specimens, is to be noticed. The twenty-four samples of black muck give an average of 33 lb. of nitrogen to the ton. Nitrogen is the most costly of the three important fertilizing elements generally found necessary to return to the soil. Its value may

be said to vary from 18 cents per pound in salts of ammonia and nitrates to 5 cents per pound in wool waste, hair, &c. Although these may be considered trade values, yet in a great measure they represent their relative worth to the farmer. The nitrogen in the first-named articles is immediately available, whereas in hair, wool and the like, a fermentation process must ensue, continuing over a considerable length of time, before the nitrogen is converted into such a soluble condition that plants can make use of it. Mucks rank with the latter rather than with the former class, as fermentation is necessary to obtain its full benefit. If the nitrogen in muck be assigned an average value of 7 cents per pound (the degree of fermentation or decay that has taken place will affect its worth for present results), one ton of the material containing 33 lbs. of nitrogen would be worth \$2.31, and a sample possessing 50 lbs. to the ton, \$3.50. It is plain, therefore, that a valuable nitrogenous fertilizer is to be found in the deposit of many of our swamps.

EEL GRASS (*Zostera marina*).

A sample of this material has been received from Mr. William Mackay, of Haliburton Bridge, Pictou, Nova Scotia, who writes that it grows in immense quantities in all the harbours and shallow bays on the north shore of Nova Scotia and New Brunswick. He further says that it is generally supposed to be useless as a manure and allowed to go to waste, excepting small quantities used for banking houses in the autumn. If the dry substance contained 1 per cent of nitrogen, Mr. Mackay thought it would be worth hauling.

The material as received had been dried with a gentle heat. Its analysis furnished the following figures :--

	Per cent.
Total ash, or mineral matter.....	21.90
Phosphoric acid (in ash, 1.80 per cent).....	0.41
Potash (in ash, 13.28 per cent).	2.90
Nitrogen, in organic matter.....	1.24

If without great expense this substance can be procured—preferably of course in the dry condition—I consider it would prove a valuable fertilizer. It contains notable quantities of the three chief constituents of plant food—potash, phosphoric acid and nitrogen. Before application to the soil it should be fermented. In its dry, hard condition it might lie in the soil undecomposed for a very long time. If suitable for bedding, this manner of use would be most profitable; but in any case it should be first mixed with some material that would cause its decay. In this process of composting the elements of plant food are set free in an easily assimilable form.

SPENT TAN BARK.

This was also forwarded by Mr. Mackay, who stated that a tannery in the neighbourhood ran 4,000 to 5,000 tons of the substance annually into a cove, as worthless. It is hemlock bark after the “tan” has been extracted, and is essentially woody fibre. On analysis it was found to possess .167 per cent of nitrogen. As a fertilizer, I am of the opinion that this material is almost valueless. It contains very little plant food, and is of a nature that would enable it for a long time to resist decay.

AMMONIACAL GAS LIQUOR.

In the destructive distillation of coal for the manufacture of illuminating gas a number of bye-products are formed, prominent among which is the so-called ammoniacal liquor. It contains varying amounts of ammonia (according to the nature of coal used and the process of condensation and purification in vogue), and also of certain other tarry and volatile substances.

Viewing it as a fertilizer, we may consider it as a dilute solution of ammonia containing certain impurities more or less harmful to vegetation—notably sulphur compounds.

For the purpose of concentrating and fixing the valuable constituent, ammonia, and in order to get rid of the poisonous products, it is submitted to distillation, the ammonia being collected in sulphuric acid. In this way ammonium sulphate is formed, a salt largely used in artificial fertilizers.

The direct application of the ammoniacal liquor to the soil can only be used with safety after careful experiment and previous dilution. It is impossible to give definite instruction with regard to the extent of the dilution that should be practised, owing to the fact that the liquor varies in strength and amount of impurities in different samples. Some persons have found injurious effects from it when diluted to twelve times its volume, while others have used it with safety and profit upon the addition of three times its bulk of water only.

When not distilled, this gas liquor is usually allowed to run to waste. Containing as a rule somewhat under 1 per cent of ammonia, it scarcely pays to transport it any great distance. The question, however, has arisen, whether the liquor could not be used with advantage by the agriculturists in the neighbourhood of its production. Large watering carts have been suggested for distributing it on the land, and also the plan of adding sufficient sulphuric acid to the liquor to fix the volatile ammonia—present chiefly as the volatile carbonate—before application. It may be possible by suitable treatment to produce a valuable fertilizer without the expense of distillation. The details and cost, however, have yet to be worked out to arrive at an economical process. It may be found that upon neutralizing of the liquor with sulphuric acid and allowing it to stand for three or four days the volatile poisonous compounds are largely evolved, the tarry matter deposited and the ammonia retained. If such a simple method worked satisfactorily, the resulting liquor might be diluted in the fields to the proper degree, and at once applied to the soil. Again, ground gypsum added to the crude liquor would have the effect of retaining the ammonia in the liquid, the tarry matter being deposited with the carbonate of lime formed.

At the request of the Hon. J. B. Snowball, Chatham, N.B., a sample of ammoniacal liquor has been examined. The analysis showed that 14 gallons contained 1 lb. ammonia (NH_3). Every gallon of this liquor would produce 4 ozs. of ammonium sulphate. It contained therefore a little less than 1 per cent of ammonia. Nitrogen in artificial fertilizer costs about 17 cents per pound. This liquor therefore contains one cent's worth of nitrogen per gallon. If an opportunity presents itself, it is proposed to make some experiments with the material during the coming year at the Farm laboratories.

Sulphate of ammonia, while not a complete manure for plants, is an exceedingly valuable one for supplying nitrogen. It acts rapidly in the soil on account of its extreme solubility. In conjunction with other elements of plant food it usually gives most gratifying results—especially upon worn-out soils.

PART III.

FODDERS.

The desirability of our farmers having information regarding the relative value of cattle foods, as derived from chemical analysis, has led to a continuation of the work commenced and reported upon last year.

The laboratory investigations of the past season in this connection have been confined almost exclusively to the examination of roots and fodder corn.

Roots.

Roots form an important ingredient in cattle rations, and are largely grown to supply during the winter months succulent and palatable food.

In no sense can they be considered concentrated food, for they contain a very large percentage of water, and the "dry matter" is not rich in albuminoids; but owing to their easy and entire digestibility, their succulent nature, and what we may term medicinal properties, they have been found exceedingly valuable for keeping up the milk flow and in preserving a healthy tone to the digestive organs of the cow. The dry matter (or real cattle food) of roots is essentially non-nitrogenous. Their "nutritive ratio," or proportion of digestible albuminoids to digestible non-nitrogenous portion, is wide, and varies from 1 : 8 to 1 : 13. For this reason, together with the fact that the dry matter is only from 170 lbs. to 190 lbs. per ton, roots cannot be fed exclusively. Their use should be supplemented with a coarse or bulky fodder—for the proper distention of the ruminating apparatus—and also with a judicious quantity of a concentrated food, such as bran, oil cake or other meal to supply albuminoids. In this way a properly balanced and economical ration may be prepared.

The samples analysed were as follows:—Carrots, 3 varieties; turnips, 2 varieties; mangels, 3 varieties, and of sugar-beets 4 varieties. They were grown on the Central Experimental Farm during 1891. The roots examined were typical examples of fine specimens of each variety. They had been preserved as such, and not selected for analytical purposes. It is generally admitted, and confirmed by analysis, that the increased development in large roots is accompanied by a decrease in the percentage of dry matter—that is, the larger roots are the more watery, as a rule. On this account the percentage of water found in those examined is probably somewhat higher than it is in the average-size root. Three or more roots of each variety served to furnish the material from which the samples for analysis was taken.

In my report for 1890 I gave a brief account of the composition, value and function of fodder constituents, to which I would refer the reader for an explanation of the terms used in the following tables:

Carrots.—Three leading varieties were analysed, and their comparative value is brought out by the figures that denote the amount of digestible matter per ton in the above table. Though very close, the Ox-heart gave results which show it to be slightly richer in food constituents than the Short White or the Belgian carrots.

Turnips.—The Purple-top Swede, according to our analyses, is more valuable than the Greystone turnip.

Mangels.—The Golden Flesh, Golden Tankard and Mammoth Long Red mangels form the next group examined. No great amount of difference in composition is noticeable between these varieties. They are second to carrots in feeding value, weight for weight.

Sugar-beets.—The interest that has been awakened throughout Ontario and Quebec lately in the growing of sugar-beets for the purpose of manufacturing sugar has made it advisable to ascertain the value of this crop as fodder, compared with that of other roots. Analyses of four principal varieties have been made and the results tabulated. They show that sugar-beets are the most nutritious of all roots, containing about one-half more dry matter than carrots, mangels and turnips. Much of this dry matter consists of sugar, easily digested and assimilated, and of considerable

value as a food. The culture of sugar-beets when grown for fodder purposes differs from that of those raised for the sugar factory. As a fodder crop the plants should not be so close together in the row, nor is there any necessity to earth them up, as in the case of factory beets. The yield per acre, in this way, will be considerably increased.

Sugar-beet Pulp.—This is a bye-product in the manufacture of sugar from beets, and consists of the residue after the extraction of the sugar by diffusion. The very large percentage of water (95·72 per cent) causes the fresh material to be of very little value. If pressed, however, until it contained 20 per cent of solid matter and then converted into ensilage, a useful fodder results.

Fodder Corn.—For the sake of comparison I have inserted the average composition of 7 varieties of Indian corn fodder at different stages of development—particulars of which appeared in Bulletin No. 12, issued in June last. The analyses of two samples of ensilage are also added. These latter show that there may exist a wide variation in the value of ensilage, depending chiefly on the degree of maturity of the fodder ensiled and the care with which it is preserved. If the corn possess a large percentage of water when put in the silo and the air not thoroughly excluded, the ensilage will be poor in quality. Further remarks on this important fodder crop will be found in a special chapter devoted to the results of our experiments of the past three years.

Screenings.—These samples consist of small wheat, weed seeds, chaff, broken straw, &c., winnowed out in the cleaning of the wheat before grinding.

Mr. Fletcher, Dominion Botanist, to whom was submitted a sample, makes the following report as to its botanical composition:—

	Per cent.
Small and broken wheat, chaff, straw, &c..	30·0
Seed of the wild buckwheat (<i>Polygonum convolvulus</i>)	29·2
Seed of the lamb's quarter (<i>Chenopodium album</i>)	33·3
Stinking smut	6·0
Seeds of wild sunflower	1·5

It is impossible to arrive at the actual feeding value of the screenings from analyses alone, as the digestibility must be taken into account, concerning which I have no data. However, an approximation to its relative value may be ascertained by comparing its composition with that of other fodder articles. I therefore subjoin the following:—

Fodder.	Albuminoids.	Fat.	Carbo-hydrates.
	Per cent.	Per cent.	Per cent.
Linseed meal	32 to 38	5 to 7	40 to 45
Wheat bran	17 to 20	2 to 6	55 to 62
Good hay	8 to 15	1·5 to 2	50 to 55
Corn meal	10 to 15	3 to 5·5	73 to 83
Pea do	20	1·5	55
Screenings Nos. 1 and 2	13·5 to 14·5	2·75 to 3	56 to 65

The screenings are finely ground, so that the material sold is in the form of meal. I have no information regarding any effect on the cow's digestion or general health by the substitution of this for other meals in the ration.

The following instructive table, besides giving the amounts of water and dry matter in the fodders already discussed, shows the percentages of food constituents in the solid matter, thereby allowing a comparison to be made of the value of the fodders after deducting the amount of water they contain. It also states the quantity of dry matter (practically all digestible in the case of roots) in one ton of the fodders.

ANALYSES OF FODDERS, 1891.

Fodder.	Manufacturer, Grower or Sender.	Water.	Albuminoids.	Fat.	Carbo-hydrates.	Fibre.	Ash.	Pounds of Digestible Matter in a ton (2,000 lbs.)				Nutritive Ratio.	
								Albuminoids.	Fat.	Carbo- hydrates.	Fibre.		Total.
Carrot, Ox-heart, Short Red (Steele)	C. E. Farm	90.17	.66	.01	7.36	.97	.83	13.2	.2	147.2	19.4	180.0	1:12.6
do Short White (Steele)	do	90.79	.77	.03	6.66	.86	.89	15.4	.6	133.2	17.2	166.4	1:9.8
do Giant White Belgian (Sutton)	do	90.51	.77	.02	6.78	.97	.95	15.4	.4	135.6	19.4	170.8	1:10.1
Turnip, Greystone	do	90.95	.66	.06	6.41	.97	.73	13.2	1.2	128.2	23.8	166.4	1:11.7
do Purple-top Swede	do	89.74	1.40	.04	6.75	1.40	.67	28.0	.8	135.0	28.0	191.8	1:6.0
Mangel, Golden	do	90.56	1.10	.03	6.42	.84	1.05	22.0	.6	128.4	16.8	167.8	1:6.7
do Golden Tankard	Hon. Chas. Pelouin	91.90	.78	.03	5.62	.63	.84	15.6	.6	112.4	12.7	141.3	1:8.1
do Mammoth Long Red	C. E. Farm	91.41	.96	.02	5.73	.81	1.07	19.2	.4	114.6	16.2	150.4	1:6.8
Sugar-beet, Vilmorin Improved	do	84.89	1.35	.06	11.84	.99	.87	27.0	1.2	236.8	19.8	284.8	1:9.6
do Klein Wanzleben	do	83.09	1.42	.06	13.27	1.19	.97	28.4	1.2	265.4	23.8	318.8	1:10.3
do Musy "C.H."	do	85.09	1.52	.04	11.25	1.12	.98	30.4	.8	225.0	22.4	278.6	1:8.1
do Kruger	do	83.88	1.70	.04	12.21	1.19	.98	34.0	.8	244.2	23.8	302.8	1:8.0
Sugar-beet "pulp"	Factory, Farnham, Que.	95.72	.51	.01	2.36	1.26	1.14	10.2	.2	47.2	25.2	82.8	1:7.1
Indian corn, average of 7 varieties, "silk- ing and early milk stage"	C. E. Farm	80.76	1.76	.21	10.70	5.19	1.38	25.6	3.1	143.9	77.2	249.8	1:9.0
do average of 7 varieties, "late milk stage"	do	77.25	1.81	.34	13.10	6.22	1.21	27.4	5.0	175.8	89.7	297.7	1:10.4
do ensilage	do	78.00	2.07	.96	11.41	6.25	1.31	30.3	14.4	152.8	89.9	287.4	1:9.2
do "Crosby Early"	J. Drummond, Petite Côte, P. Q.	80.63	1.84	.83	9.94	4.30	2.45	26.9	12.4	133.2	61.9	234.4	1:8.4
Screenings, No. 1	Lake of the Woods-Milling Co., Keewatin	7.17	14.56	3.09	56.47	14.71	4.00	.....	.....	.....	.....	.....	.....
do No. 2	do	7.35	13.44	2.72	65.39	8.55	2.55	.....	.....	.....	.....	.....	.....

FODDERS: Composition and Amount of Dry Matter per Ton.

FODDER.	MANUFACTURER, GROWER OR SENDER.	Water.	Dry Matter.	COMPOSITION OF DRY MATTER.					Dry Matter per ton, in Pounds.
				Albumi- noids.	Fat.	Carbo- hydrates.	Fibre.	Ash.	
		Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	
Carrots, Ox-heart	Central Experimental Farm.....	90.17	9.83	6.72	.10	74.87	9.87	8.44	196.6
do Short White.....	do	90.79	9.21	8.36	.33	72.31	9.34	9.66	184.2
do Giant White Belgian.....	do	90.51	9.49	8.12	.21	71.44	10.22	10.01	189.8
do average, 3 varieties	do	90.49	9.51	7.73	.21	72.88	9.81	9.37	190.2
Turnips, Greystone	do	90.35	9.05	7.29	.66	70.83	13.15	8.07	181.0
do Purple-top Swede.....	do	89.74	10.26	13.64	.39	65.79	13.65	6.53	205.2
do average, 2 varieties.....	do	90.34	9.66	10.47	.52	68.31	13.40	7.30	193.2
Mangels, Golden.....	do	90.56	9.44	11.65	.32	68.01	8.90	11.12	188.8
do Golden Tankard	St. Hyacinthe	91.90	8.10	9.66	.26	71.89	7.83	10.42	162.0
do Mammoth Long Red.....	Central Experimental Farm.....	91.41	8.59	11.17	.23	66.71	9.43	12.46	171.8
do average, 3 varieties.....	do	91.29	8.71	10.83	.28	68.06	8.72	11.33	174.2
Sugar-beet, Vilmorin's Improved	do	84.89	15.19	8.94	.40	78.35	6.55	5.76	303.8
do Klein Wanzleben.....	do	83.09	16.91	8.40	.34	78.48	7.04	5.74	338.2
do Musy "C. H."	do	85.09	14.91	10.20	.27	75.45	7.51	6.57	298.2
do Krügers.....	do	83.88	16.12	10.55	.25	75.74	7.38	6.08	322.4
Average 4 varieties.....	do	84.24	15.76	9.52	.31	77.01	7.12	6.04	315.2
Sugar-beet, pulp.....	Factory, Farnham, Que.....	95.72	4.28	11.91	.23	55.14	29.44	3.27	85.6
Fodder corn, glazing, average	Central Experimental Farm.....	73.82	26.18	.....	.....	.....	.....	.....	523.6

FODDER CORN.

The results of the field experiments and analyses with this important crop made during 1889 and 1890 were issued in June last in bulletin form. From the analytical data then given I was enabled to draw the following conclusions:—

1. That the corn plant increases in value, by the storing up of digestible dry matter, until the kernel begins to glaze. If left uncut after this period the fibre becomes more indigestible and the percentage of albuminoids is somewhat lessened, and consequently the food value is lowered.

2. That the dry matter in different varieties of fodder corn, taken at the same stage of growth, is very similar in composition.

3. That it is during the early part of the season that the corn plant takes from the soil the larger portion of the mineral or ash constituents it requires; and also that the albuminoids (whose chief constituent is nitrogen) are principally formed in the tissues while the plant is yet young.

EXPERIMENTS OF THE PAST SEASON.

Further work, both in the field and laboratory, has been done during the past season towards obtaining fuller information regarding the growth of the corn plant.

The varieties experimented with were Longfellow, Pearce's Prolific, Thoroughbred White Flint and Red Cob Ensilage. These were sown in drills 3 feet apart, in fairly rich, loose soil. The latter had been well tilled, and it received a thorough cultivation during the growth of the crop.

Samples of each variety, consisting of 200 feet of one row, were cut at the following stages of growth: Tasselling, silking, early milk, late milk and glazing. The fodder was carefully weighed and a representative portion analysed. By these means the yield per acre and the nutritive value of the fodder at the different periods of development were obtained.

The following are the percentages of water and dry matter in the fodder corn:—
AMOUNT of Water and Dry Matter in certain varieties of Fodder Corn at different stages of Growth, 1891.

Variety.	Stage of Growth.	Date.	Percentage of Water.	Percentage of Dry Matter.
Longfellow.....	Tasselling	Aug. 1.....	86·87	13·13
	Silking.	do 11 ...	86·02	13·98
	Early milk.	do 27.....	82·84	17·16
	Late milk.....	Sept. 10....	77·51	22·49
	Glazing.....	do 21	75·28	24·72
Pearce's Prolific.....	Tasselling	Aug. 3.....	84·52	15·48
	Silking	do 13 ...	84·91	15·09
	Early milk.	do 29.....	81·90	18·10
	Late milk.....	Sept. 12....	79·00	21·00
	Glazing.....	do 22	72·36	27·64
Thoroughbred White Flint	Tasselling	Aug. 18.....	85·84	14·16
	Silking	do 25.....	85·27	14·73
	Early milk.	Sept. 22....	81·42	18·58
	Late milk	Oct. 3.....	77·07	22·93
Red Cob Ensilage.....	Tasselling	Aug. 22.....	85·68	14·32
	Silking	Sept. 2.....	79·14	20·86
	Early milk.....	Oct. 3.....	76·06	23·94

Averaging these results we obtain the figures in the subjoined table, where also are to be found the yield per acre, and the amount of dry matter in one ton of the fodder and the weight produced per acre at different periods in the life of the corn plant.

COMPOSITION, Yield per acre and Dry Matter per ton and per acre, 1891.

(Average of four varieties of Fodder Corn.)

Stage of Growth.	Percentage of Water.	Percentage of Dry Matter.	Yield per Acre.	DRY MATTER.	
				Per Ton.	Per Acre.
			Tons. lbs.	Lbs.	Tons. lbs.
Tasselling	85·73	14·27	22 1,329	285	3 468
Silking	83·83	16·17	24 52	323	3 1,770
Early milk	80·05	19·95	22 1,806	399	4 1,138
Late milk	77·86	22·14	21 759	443	4 1,467
Glazing	73·82	26·18	21 1,154	524	5 1,298

An examination of these figures shows most clearly the great gain to be obtained in nutritive value by allowing the corn plant to grow till the kernel glazes before cutting, whether it be intended for the silo or for preservation in the dry condition. In these experiments the increase of food material in the corn between tasselling and glazing amounted to about 75 per cent.

The value of this crop for producing cheaply a large quantity of palatable food has now become widely recognized. Sweet ensilage is now acknowledged as a valuable ingredient in the ration of cattle, both for milk and flesh production. The convenience in having a large supply of coarse fodder in a small compass renders the silo exceedingly useful to the farmer, stock-raiser and dairyman. By its means, food may be preserved in a succulent condition for use during the winter months.

The following suggestions, based on the results of the experiments of the last three seasons, are offered to those growing this valuable fodder crop:—

1. The tillage of the soil should be as thorough as possible, in order to allow the roots to freely penetrate the soil. The ploughing should be well done. The corn plant is one that readily responds to a rich soil. It will, therefore, be good practice to have it in a good mechanical condition and to give it a liberal application of manure.

2. Plant in drills or in hills. Sowing broadcast should be abandoned, as a great loss of cattle food per acre ensues from this course. The drills should never be less than three feet apart, and with most varieties as large a yield will be obtained if the distance be three and a-half feet. This plant requires plenty of room to properly develop and mature. It is mistaken economy to sow too thickly; 18 lbs. to 20 lbs. of seed per acre will give the best results. Essentials for rapid and generous growth are sunlight and air. When the rows are too close or too thickly seeded the plants are stunted and undeveloped, and the crop is not as suitable for preservation. It should be remembered that it is by the agency of sunlight that the leaves are able to appropriate the carbonic acid of the air—the source of all the carbonaceous food material formed in the plant.

3. Only varieties should be sown that yield a heavy crop and come to the glazing condition of growth before there is danger of damage by frost. Pearce's

Prolific, Longfellow and Thoroughbred White Flint are excellent for many localities. There are, however, other sorts which yield good results. Care should be taken to ascertain before purchasing seed if the variety is a heavy cropper and will come to maturity in the climate of the grower.

4. Begin cultivating early and keep the crop free from weeds. As the plants grow, restrict the cultivating more and more to the centre of the rows, otherwise there is a danger of cutting the principal roots which feed the plant.

5. Harvesting should be commenced when the kernel begins to glaze. The stalks at this time are beginning to turn yellow near the ground. If allowed to remain standing after this period the digestibility of the fodder may be impaired. If intended for the silo, and the weather permits, it should be left to wilt for two or three days after cutting. Sweeter ensilage results as a rule by this method than by at once drawing in and filling the silo.

SUGAR BEETS.

Sixty-four samples of sugar beets have been examined and are now reported on. Forty-five of these were grown on the Central Experimental Farm and nineteen were received for analysis from various localities in the Dominion.

The analyses of twenty-one samples grown on the Experimental Farm, Ottawa, from seed supplied by Wilfrid Skaife, Esq., of Montreal, afford the following averages:—

Percentage of sugar in juice.....	14.0 per cent.
Coefficient of purity.....	83.3 do
Average weight of one root.....	14 oz.

The seed is a cross between the varieties Klein Wanzleben and Vilmorin's Improved, and is known as "Krüger's" seed.

The ground had been well prepared and the roots were kept earthed up. The season was not a very good one for this crop, being too dry during the early part of the summer and too wet when the beets were ripening. Taking this into consideration, the average of 14 per cent of sugar is not low, and compares well with that obtained in the western States, where the crop is grown for manufacturing purposes. The coefficient of purity (or percentage of sugar in the solid matter) stands sufficiently high to make extraction of the sugar easy. The variation between the samples in sugar content is on the whole very slight.

Experiments with "Earthing."—The second series of experiments with sugar beets consisted in the analysis of 24 samples, including 12 well-known varieties. As explained in the following table, twelve samples (one of each variety) were kept thoroughly earthed while growing, while the remaining twelve were allowed to protrude above the surface of the ground. The averages of these show that the earthed samples were in every way superior to those unearthed, containing over two per cent more sugar, a higher coefficient of purity and a smaller weight. These results point to the value of the suggestions made last year for the culture of this crop. In eleven instances out of the twelve, the earthed roots gave a greater percentage of sugar than the unearthed. The analysis in each case was made from at least six roots. The maximum percentage of sugar was 16.3 and the minimum 5.5, and the average of the 24 samples was 12 per cent. Other data are given in detail in tabular form.

ANALYSES OF

EARTHED AND

No.	Grower.		Locality.	Variety.	Date of Sowing.
22	Central Experimental Farm		Ottawa	"Krüger's Seed"	May 11...
23	do	do	do	do	do 11...
24	do	do	do	"Vilmorin's No. 1"	do 11...
25	do	do	do	do	do 11...
26	do	do	do	"Vilmorin's No. 2"	do 11...
27	do	do	do	do	do 11...
28	do	do	do	"Vilmorin's Green-top Brabant"	do 11...
29	do	do	do	do do	do 11...
30	do	do	do	"Vilmorin's Improved"	do 11...
31	do	do	do	do	do 11...
32	do	do	do	"Vilmorin's Yellow Giant"	do 11...
33	do	do	do	do do	do 11...
34	do	do	do	"Original Klein-Wanzleben"	do 11...
35	do	do	do	do do	do 11...
36	do	do	do	Musy "C. H"	do 11...
37	do	do	do	do	do 11...
38	do	do	do	Musy "B. D"	do 11...
39	do	do	do	do	do 11...
40	do	do	do	Musy "I. B"	do 11...
41	do	do	do	do	do 11...
42	do	do	do	Bulteau Desprez, U.S. Dept. Agriculture	do 11...
43	do	do	do	do do	do 11...
44	do	do	do	Dippe's Klein Wanzleben	do 11...
45	do	do	do	do do	do 11...
Average of 12 varieties, earthed. ....					.....
do 12 do unearthed .....					.....

SUGAR BEETS, 1891.

UNEARTHED PLOTS.

Date of Pulling.	Percentage of Sugar in Juice.	Coefficient of Purity.	Average Weight of one Root.		Nature of Soil and Fertilizer.	Remarks on Culture.
			Lbs.	ozs.		
Oct. 7.....	14.0	81.4	1	9	Manured in autumn, 1890	Earthed.
do 7.....	12.7	82.7	1	1	do do	Unearthed.
do 7.....	10.8	77.5	1	1	do do	Earthed.
do 7.....	8.5	70.0	2	3	do do	Unearthed.
do 7.....	12.0	78.8	.....	12	do do	Earthed.
do 7.....	10.3	76.7	1	12	do do	Unearthed.
do 7.....	16.3	83.4	.....	14	do do	Earthed.
do 7.....	10.1	77.5	2	6	do do	Unearthed.
do 7.....	14.4	84.5	.....	11	do do	Earthed.
do 7.....	13.2	82.4	1	2	do do	Unearthed.
do 7.....	8.6	73.5	.....	11	do do	Earthed.
do 7.....	5.5	61.9	1	0	do do	Unearthed.
do 7.....	14.9	85.4	.....	15	do do	Earthed.
do 7.....	11.9	82.3	1	10	do do	Unearthed.
do 7.....	12.1	81.0	1	5	do do	Earthed.
do 7.....	11.7	81.2	1	1	do do	Unearthed.
do 7.....	12.5	83.2	1	7	do do	Earthed.
do 7.....	13.5	82.6	1	13	do do	Unearthed.
do 7.....	15.3	86.5	.....	12	do do	Earthed.
do 7.....	12.5	80.8	1	2	do do	Unearthed.
do 7.....	14.2	83.7	1	6	do do	Earthed.
do 7.....	10.3	76.6	1	12	do do	Unearthed.
do 7.....	13.2	82.0	1	1	do do	Earthed.
do 7.....	11.8	86.0	1	5	do do	Unearthed.
.....	13.2	81.8	1	0		
.....	11.0	79.2	1	8		

The second table of data gives the analyses and particulars regarding the growth, etc., of beets sent in for examination. Those grown on the experimental farm at Nappan, N.S. (Nos. 46 and 47) proved to be good roots as to sugar content, coefficient of purity and weight. As they received no special culture, it would appear that both the soil and season were conducive to the production of a rich beet.

ANALYSES OF

No.	Grower.	Locality.	Variety.	Date of Sowing.
46	Experimental Farm.....	Nappan, N.S.	Dipper's Klein-Wanzleben ..	June 26..
47	do	do	Bulteau Desprez ..	do 26..
48	do	Agassiz, B.C.	do	do
49	do	do	Dippe's Klein-Wanzleben.....	do
50	do	Indian Head, N.W.T.	Bulteau Desprez	May 9..
51	do	do	Klein-Wanzleben.....	do 9..
52	John Galbraith.....	Camden East, Ont.....	White Silesian.....	April 28..
53	William Link.....	Harwich Township.....	do	do
54	do	do	do	do
55	William Weaver.....	Chatham Tp., Lot 5, Con. 4.....	From Schreiber & Sohn, Nordhausen, Germany.	June 10..
56	J. J. Payne	Raleigh Tp., Lot 22, Con. 3....	do do	do
57	John Langmoore.....	do Lot 14, Con. 7.....	do do	do
58	Andrew Neill.....	Harwich Tp., Lot 25, Con. 1....	do do	do
59	Frank Suitar	Raleigh Tp., Lot 13, Con. 7.....	do do ..	do 12..
60	Wm. Irwin.....	do Lot 13, Con. 6.....	do do ..	do
61	M. S. Jackson.....	Chatham Tp., Lot 1, Con. 2.....	do do ..	July 8..
62	Thos. Montgomery	Raleigh Tp., Lot 17, Con. 6.....	Skaife's Seed.....	June 20..
63	F. Arnold	Camden Township	Schreiber's Seed	do 20..
64	J. Gall.....	Masonville, Ont.....	Ferry's Seed.....	do

Those grown at Agassiz, B.C., were not quite equal to the above, and those from the experimental farm at Indian Head, N.W.T., gave still lower results. Sufficient analyses have not yet been made, nor has the culture of the beets in these provinces been sufficiently thorough to allow of any conclusions being drawn at present as to the suitability of these districts for the production of a rich sugar beet.

SUGAR BEETS, 1891.

Date of Pulling.	Percentage of Sugar in Juice.	Co-efficient of Purity.	Average Weight of One Root.	Nature of Soil.	Remarks on Culture.
			Lbs. oz.		
Oct. 22..	15.4	84.3	1 0	Light clay loam ; well	Rows 26 in. apart ; plants thinned to 6 in. Not earthed up, but well cultivated.
do 22 .	14.0	82.4	1 2	drained. do ..	
.....	13.1	80.0	2 0	.....
.....	13.3	82.6	1 14	.....
Sept. 28..	11.2	75.0	1 3	Fallowed previous autumn.	Rows 30 in. apart ; plants thinned to 10-12 in. Well cultivated, but not earthed up.
do 28..	11.7	75.5	1 4	do do ..	
Oct. 26..	14.5	79.4	2 1	Sandy loam	Kept clean, rows 24 in. apart ; plants thinned to 6-12 in.; partly hilled. Particulars not given.
.....	6.0	71.3	17 1	Clay do	
.....	10.6	75.2	2 14	do do	
Oct. 24..	8.8	68.9	4 3	Rich clay loam	Not earthed ; kept clean.
.....	12.4	80.0	1 14	Sandy loam	Rows 14 in. apart ; thinned to 6-10 in.; not earthed.
.....	13.2	80.5	2 2	Rich loam	Rows 20 in. apart ; thinned to 10 in.
.....	11.0	75.5	3 6	do clay	Rows 24 in. apart ; thinned to 8 in.
Oct. 28..	7.6	65.1	7 2	do black loam	Not well earthed ; little cultivation.
.....	8.3	66.5	3 1	do sandy do	Rows 22 in. apart ; thinned to 8-10 in.; not covered.
.....	12.3	74.4	1 14	Sandy loam	Rows 30 in. apart ; thinned to 6-8 in.
.....	12.4	79.4	3 7	do	Not covered ; rows 20 in., plants 6-8 in. apart.
.....	12.3	77.0	2 6	do	Not well covered ; rows 18 in., plants, 10 in. apart.
.....	13.2	83.3	1 6	.....	Manured in winter with barn-yard manure.

In No. 53 we have an excellent example illustrating the statement that large roots are usually very poor in sugar. No. 54 is the same variety of beet, grown on the same soil and in the same way, and though still too large, contains 4·6 per cent more sugar.

The roots throughout were too heavy to give high sugar percentages, and neglect to keep them earthed had assisted in most instances in causing low coefficients of purity.

SORGHUM.

Seed of three varieties of sorghum was furnished by Mr. Corbeil, of Hull, P.Q., with the request that they should be sown and the percentage of sugar in the product estimated.

This plant, known as the Chinese Sugar Cane (*Sorghum vulgare*) has been extensively introduced into the United States. Its cultivation there, both as a fodder crop and for the production of molasses and sugar, has been a matter of much experiment for some years past by the experimental stations, and the manufacture of sugar from the cane has received Government and State aid, with the view of establishing, if possible, an economical process for its extraction.

It therefore became a matter of interest to ascertain what amount of sugar the plant would develop when grown here, and, in accordance with the wishes of Mr. Corbeil, the work already alluded to has been carried out at the Central Farm, Ottawa. The following analyses give the results:—

<i>Sorghum.</i>		Percentage of Sugar in Juice.
No. 1.....		5·15
No. 2.....		6·29
No. 3.....		9·50

The minimum percentage of sugar in the cane, as grown in the United States, is about 2 per cent, and the maximum 18 per cent, according to the variety of the sorghum, the season, &c.

Our present figures show a cane altogether too poor for profitable extraction. Sorghum requires a long and somewhat dry season, and although the exact and most favourable conditions for a rich cane are, perhaps, as yet unknown, it seems probably certain that the frosts of autumn, common to the climate of Ottawa and vicinity, would be detrimental to the quality of the sorghum for manufacturing purposes.

MILK: THE BABCOCK TEST.

The value of milk depends principally upon the percentage of fat it contains, and this is true whether it be purchased by the city consumer, the creamery or the cheese factory. Fat is the most important and most valuable of all the constituents of milk, though of course the solids-other-than-fat have a food value.

A great variability exists in samples of genuine milk as to the amount of fat they possess. This is owing to breed, food, environment, period of lactation and individual characteristics. Again, the composition of the milk of the same cow is by no means constant—the total solid matter, including fat, being subject to large fluctuation within comparatively short periods of time.

Within certain limits, water may be added or cream extracted from pure milk, without liability of detection.

For these reasons, it becomes apparent that the adoption of any ready and cheap method for accurately determining the amount of fat would result in the valuation of milk according to its *quality*, and the selling and buying of milk would be placed upon a more equitable basis than it now enjoys. Quality as well as quantity should be taken into account, for in this way the producer would be paid for his labour and skill and the purchaser receive his money's worth.

The method devised by Dr. Babcock, of Wisconsin, was examined in our laboratories during the past year, and the results compared with those obtained from the same samples by an accurate method of chemical analysis. The work was published, somewhat in detail, in Bulletin 12, of the Dairy series; I therefore here only insert conclusions.

Of the thirty-two samples tested in duplicate by the Babcock method, only two gave a difference between their duplicates, amounting to three-tenths (.3) of one per cent.; two varied in their duplicates two-tenths (.2) of one per cent.; fourteen differed to the extent of one-tenth (.1) of one per cent., and thirteen gave results identically the same.

The greatest difference between fat determinations by the Babcock test and gravimetric analysis on the same milk was (.25) a quarter of one per cent. This occurs in three instances only. Where the results are not identical, the variation is usually between one-tenth and two-tenths of one per cent.

From these data, therefore, we may safely conclude that when the Babcock test is made according to instructions given with the machine, *strictly reliable results are obtained*, and that the percentage of fat so found, allowing for the greatest error possible under such circumstances, will be well within one-quarter of one per cent. (.25) of the amount of fat actually contained in the milk.

CONDENSED MILKS.

The brands analysed were "Reindeer Brand," manufactured by the Condensed Milk and Canning Company, Truro, N. S., the "Shamrock Brand," of the Condensed Milk Company of Ireland, Limerick, and the "Fruit Brand," Gleeve Bros., London and Liverpool.

On opening the tins a preliminary examination of the physical characters of the milk afforded me the following data:

"Reindeer Brand" is of a slightly yellowish tint; in an excellent state of preservation; evidently a well-made milk and perfectly homogeneous throughout; readily soluble in water, yielding a milky fluid, very sweet, with a slightly "boiled" taste.

"Shamrock Brand," of a bluish-white tint. In a good state of preservation; easily soluble in water—the resulting fluid having a marked flavour of boiled milk. One tin of this brand was found on opening to be somewhat fermented, evidently owing to imperfect soldering.

"The Fruit Brand," somewhat darker in colour than the milk of the "Reindeer Brand." Well made and in a good state of preservation; easily soluble in water, with a sweetish "boiled" flavour.

The composition of the milks, as elicited by a careful and thorough analysis, is depicted in the subjoined table:

COMPOSITION OF CONDENSED MILKS.

	Reindeer Brand.	Shamrock Brand.	The Fruit Brand.
Water	25.67	30.22	27.70
Total solids	74.33	69.78	72.30
Fat	7.29	35	5.13
Curd (casein and albumen)	8.44	10.44	9.31
Milk sugar	13.49	10.80	14.30
Cane sugar	43.16	46.06	41.50
Ash (mineral matter)	1.95	2.13	2.06

The foregoing data were obtained from duplicate estimations of each constituent. It is possible that a part of the cane sugar appears as milk sugar; in the process of manufacture some of the cane sugar may be converted into a form that by analysis would be determined with the milk sugar.

The following table may be useful in showing that when condensed milk is diluted until it contains a percentage of solids about equal to the percentage of solids in whole, pure milk, it is not a complete or well-balanced food. This is owing to the large proportion of cane sugar in the total solids, the sugar being added for the purpose of preservation.

If to one measure of these milks five measures of water be added, the composition of the resulting fluids will be as given below. The analysis of an average sample of pure milk is here added for the sake of comparison.

	Reindeer Brand.	Shamrock Brand.	The Fruit Brand.	Pure, average Milk.
Water.....	87.50	88.34	87.95	87.25
Total solids.....	12.50	11.66	12.05	12.75
Fat.....	1.21	.06	.85	3.50
Curd.....	1.41	1.74	1.55	3.90
Milk sugar.....	2.25	1.80	2.38	4.60
Cane sugar.....	7.20	7.68	6.92	
Ash.....	.33	.38	.35	.75

It will be seen that these are all "sweetened" condensed milks, cane sugar being largely added as a preservative during evaporation. It has been held until quite lately, that the addition of cane sugar is necessary for keeping the milk in good condition. By an improved process, however, unsweetened condensed milk is now manufactured in Switzerland. This is said to be of excellent quality. I do not think it is to be found in the Canadian markets.

In the manufacture of condensed milk, when whole milk is concentrated, unless the greatest care be exercised, oily globules separate, and the flavour becomes more or less rancid. It is, however, apparent, from the condition and analysis of the "Reindeer" and "Fruit" brands, that excessive skimming, such as has been practised in the case of the "Shamrock" milk, is not required in order to preserve a good flavour. The unsweetened condensed milk before alluded to is whole milk, concentrated to one-third of its bulk. It is, however, not free from the "boiled" flavour, apparently an inevitable result of concentration.

Although condensed milk is an extremely valuable preparation, it cannot be considered as a perfect substitute for new milk, on account of its poorness in fat, its peculiar flavour and diminished palatability and its excess of cane sugar.

Great care and skill are requisite in the concentration of milk, and it should be the object of the manufacturer to avoid, as far as possible, the development of the boiled flavour, retaining, at the same time, the butter-fat of whole milk and avoiding the excessive use of cane sugar.

Flavour is perhaps of as much importance as any other factor in determining the value of a condensed milk, and in this respect the "Reindeer" brand, made at Truro, N. S., takes the first place among those examined. Its condition betokens care in its manufacture, and the tins have been soldered air-tight. In composition it is somewhat richer than the "Fruit" brand.

The "Shamrock" condensed milk is the poorest of the three, both in composition and flavour. It is practically fat-free, and has a marked taste.

The "Fruit" brand is a good milk, and in most respects may be considered equal to the "Reindeer" milk. Its condition, flavour and composition testify to its excellence as a sweetened condensed milk.

PART IV.
WELL WATERS.

In former reports I have dwelt at some length on the necessity of good water for man and beast if health is to be maintained, endeavouring to impress upon farmers and dairymen that without pure, fresh water cows cannot produce wholesome milk, and that a great deal of the sickness on the farm might be traced to impure, polluted water. It is only too true that in many instances the wells are so situated that they act as cesspools for the drainage from the stable or privy. A glance at the last column of the subjoined table will corroborate this statement. It is, therefore, gratifying to notice that increased interest is being evinced by our agriculturists with regard to the purity of their water supply.

During the past year twenty-nine samples of drinking water have been examined and reported upon. The analytical data will be found in tabular form, together with a brief report upon the quality of the waters as deduced from these figures. Particulars, in outline, regarding the source of supply and the proximity of contamination, follow:

ANALYSES of Well Waters, 1891.
Results stated in Parts per Million.

No.	Name.	Locality.	Date.	Free Ammonia.	Albuminoid Ammonia.	Nitrogen in Nitrates and Nitrites.	Chlorine.	Total Solids at 100° C.	Solids after Ignition.	Loss on Ignition.	Oxygen Absorbed at 80° F.		Phosphates.	Report.
											In 15 Mins.	In 4 Hours.		
1	Singleton, A. C.	Brighton, Ont.	Dec. 22.	·075	·110	.....	1·00	235·0	185·0	50·0	·370	·805	.....	A fair drinking water, though not first-class.
2	Lehmann, A.	Orillia, Ont.	Jan. 6.	·015	·065	.....	45·00	524·0	324·0	200·0	·335	·724	.....	A very good water.
3	Wright, Chas.	Holland, Man.	do 27.	·040	·315	.....	5·00	642·0	406·0	236·0	2·160	7·040	Traces	Too much vegetable organic matter; probably no sewage contamination.
4	Stoddart, W. E.	Bradford, Ont.	Feb. 19.	traces	·180	9·405	750·00	2878·0	2064·0	814·0	·576	1·456	Heavy traces	Polluted by sewage; a very dangerous water to use.
5	Wenman, Wm.	Souris, Man.	June 1.	·09	·140	.....	6·5	2148·0	1856·0	292·0	1·04	2·36	Very heavy traces.	Highly suspicious.
6	do	do	do 1.	·875	·140	.....	9·0	2960·0	2486·0	474·0	1·48	2·96	do	A very bad water; totally condemned.
7	Pollock, W. C.	Almonte, Ont.	do 12.	·020	·050	.....	46·0	542·0	226·0	316·0	·1312	·4320	.....	A very good water.
8	Foster, W. A.	Huntburgh, O.	July 2.	·015	·130	12·254	66·0	704·0	402·0	302·0	·752	1·352	Very heavy traces.	Evidently contaminated; use attended with danger.
9	Hill, Robt.	do	do 2.	·010	·075	4·530	56·0	642·0	464·0	178·0	·328	·632	Traces	Perhaps a reasonably safe water, though not first-class.
10	do	do	do 2.	·005	·073	5·75	64·0	656·0	502·0	154·0	·532	·976	Very heavy traces.	Suspicious; use attended with danger.

ANALYSES OF WELL WATERS, 1891—*Concluded.*
Results stated in Parts per Million.

No.	Name.	Locality.	Date.	Free Ammonia.	Albuminoid Am- monia.	Nitrogen in Ni- trates and Ni- trites.	Chlorine.	Total Solids at 100° C.	Solids after Ig- nition.	Loss on Ignition.	Oxygen Ab- sorbed at 80° F.		Phosphates.	Report.
											In 15 Mins.	In 4 Hours.		
11	Gillespie, Thos.	Hintonburgh, O.	July 2.	·035	·175	9·68	26·0	474·0	370·0	104·0	·872	1·744	Traces.	Not safe for drinking purposes.
12	Feely, Wm.	Hull, Que.	do 20.	·06	·08	1·08	12·50	342·0	280·0	62·0	·568	1·104	Heavy traces.	A second-class water.
13	Learned, H. B.	Learned Plain, Q.	do 25.	·14	·09	·	5·50	·	·	·	·	·	·	Dangerously contaminated.
14	Mitchell, R.	Yorkton, N.W.T.	do 29.	·12	·17	·	7·00	570·0	440·0	130·0	·	·	·	A bad water.
15	Ross, A. S.	Hansford, N.S.	Aug. 4.	·15	·07	3·830	20·50	228·0	128·0	100·0	·3276	·7020	Traces.	Polluted by sewage matter.
16	Jamieson, John.	Kars, Ont.	do 19.	·13	·118	·	3·50	230·0	184·0	46·0	1·096	2·180	Traces.	Contaminated; not safe for drinking purposes.
17	Dean, Jas.	Calgary, N.W.T.	Sept. 29.	·04	·10	·	6·00	·	·	·	·	·	·	Insufficient quantity for complete analysis.
18	Harris, Wm.	do	do 29.	·06	·08	·	11·0	·	·	·	·	·	·	Not first-class waters, but probably not dangerously contaminated.
19	Town Hall.	do	do 29.	·06	·068	·	6·0	·	·	·	·	·	·	
20	Grand Central Hl	do	do 29.	·08	·064	·	5·0	2345·0	1298·0	1137·0	·	·	·	Highly suspicious.
21	Scott, W. L.	City View, Ont.	Oct. 13.	9·28	6·28	·	100·0	11330·0	5770·0	6160·0	·	·	Heavy ppte.	An exceedingly bad water.
22	do	do	do 13.	160·60	·	·	·	164·0	142·0	22·0	·04	·40	Traces.	Really liquid manure.
23	Grand Central Hl	Calgary, N.W.T.	do 28.	·08	·05	·428	1·50	212·0	178·0	34·0	·276	·678	do	Indicates previous contamination.
24	Moore, D.	do	do 28.	·02	·024	1·120	1·50	170·0	148·0	22·0	·080	·372	None.	An excellent water.
25	Waterworks.	do	do 28.	·028	·06	·174	·50	236·0	158·0	78·0	·216	·448	Traces.	Indicates previous contamination.
26	Robson, Hodder.	do	do 28.	·00	·02	4·80	4·50	417·2	354·0	63·2	·1856	·5036	do	Highly suspicious; use attended with danger.
27	Galbraith, John.	Camden East, O.	Nov. 10.	·057	·136	·573	13·0	1130·0	1014·0	116·0	·448	·844	Very heavy traces.	Very bad; condemned for drinking purposes.
28	Brodie, R.	St. Henri, Que.	do 24.	·170	·190	13·625	105·0	152·0	72·0	80	1·064	3·504	Heavy traces.	Too much vegetable matter, otherwise a good water. Would be improved by filtering.
29	Fortier, Victor.	Ste. Adèle, Que.	do 26.	·024	·27	·786	2·0	·	·	·	·	·	·	·

No. 1. Spring in pasture; formation of calcareous tufa around mouth of spring; considerable amount of vegetable, suspended matter, which should be filtered out.

No. 2. Well, 18 feet deep, dug in heavy clay with quicksand bottom; 100 feet from Lake Couchiching. The well is lined with stones laid in cement, to keep out surface water, resting on an oak crib.

No. 3. Well, 17 feet; surface soil $1\frac{1}{2}$ feet black mould, over clay and gravelly sand; about $4\frac{1}{2}$ feet water; cribbed with pine boards; evidently largely soakage water; considerable quantity of vegetable *débris*; solids blackened on heating, giving off disagreeable odour, indicating presence of organic matter. This water should be passed through an efficient filter before using.

No. 4. Depth of well, 40 feet; distance from privy, 80 feet; from barn, 300 feet; soil, heavy clay loam; water in well, 15 to 20 feet; water has distinct "salty" taste. Well dug 23 years ago and not lately cleaned out.

No. 5. Well, 35 feet deep; surface soil, 20 inches vegetable mould; subsoil, sandy loam (9 feet), resting on heavy clay; 72 feet from privy; water has offensive taste and smell.

No. 6. Well, 53 feet deep; cribbed with spruce; soil similar to that of No. 5, except that bottom is quicksand; 70 yards from stable; well evidently acts as cess-pool.

No. 7. Well, 55 feet deep; clay 12 feet; bored in rock 43 feet; 50 feet from stable; property well drained.

No. 8. Depth of well, 14 feet; clay loam, 4 feet; bored in rock 10 feet; 35 feet from privy and stable; not cleaned for three years.

No. 9. Bored well, in rock, 45 feet; privy 100 feet from well. Well not used for some years, but lately cleaned.

No. 10. Depth of well, 13 feet; clay loam, 5 feet; gravel, 1 foot; hard pan, 1 foot; rock (blasted), 6 feet; 70 feet from stable, 50 feet from privy, about 18 in. of water.

No. 11. Depth of well, 18 feet; light loam, 2 feet; rock, 16 feet; 60 feet from privy.

No. 12. Well, 16 feet deep to rock; soil, loam, 3 feet; gravel, 13 feet; 40 feet from stable and privy; height of water, 10 feet.

No. 13. Well in low ground, 12 feet deep; black muck, 2 feet; hard pan, 8 feet; limestone, 2 feet; depth of water, usually 8 feet; barn, 60 feet away; privy about 180 feet, on higher ground.

No. 14. Said to be a spring; water contained a quantity of flocculent matter; sample collected one month before analysis.

No. 15. Well, 20 feet deep; water therein from 5 inches to 15 inches; distance from barn, stable and privy, 170 feet; from sink, 22 feet; soil very hard and full of fissures, through which water percolates.

No. 16. Depth of well, 12 feet; sandy loam, 2 feet; clay and sand, 10 feet; height of water, 4 to 5 feet; situated at edge of bush in pasture.

No. 17. Well, 14 feet deep, recently dug; gravelly soil; water rises and falls with that of the Bow River.

No. 18. Well, 25 feet deep, dug two years ago; privy within 50 feet; gravelly soil.

No. 19. Well, 20 feet deep; privy distant 75 feet; not cleaned since dug two years ago; gravelly soil.

No. 20. Well, 30 feet deep, within 20 feet of a cesspool and 40 feet of a privy; quite close to stable; gravelly soil.

No. 21. Depth of well, 56 feet, bored; usually about 25 feet water; 7 yards from house, 70 yards from stable, 100 yards from silo; rock in which well is bored is full of cracks and fissures, through which evidently the soakage from silo or barn, or both, find its way into the well.

No. 22. Well about 7 feet deep, in clay, 50 yards from stable, 150 yards from silo; water filthy, very bad, and sickening.

Nos. 23, 24 and 26 are from wells of from 14 to 25 feet in depth, dug in a light, gravelly soil, and all more or less contiguous to contaminating sources, as stables and privies. Their analyses, standing by themselves, would not absolutely condemn them for use, though they would not be considered "first class." These wells, however, are evidently fed from the Bow River by infiltration, and a comparison of the analytical data of the latter water (No. 25) clearly shows that these waters receive pollution to some extent.

No. 25. Drawn from the Bow River, near Calgary; clear; no *debris*; a good water.

No. 27. Depth of well, 12 feet 6 inches, in gravelly clay with limestone bottom. Distance from house, 30 feet; from hog yard, 130 feet; from barn, 300 feet. Most probably receives soakage from hog yard through crevices of the rock.

No. 28. Well, 42 feet deep, in sandy and gravelly soil. Distance from barn, 120 feet; average depth of water, 8 feet; 60 feet from closet. A clear, bright water, with no deposit, but very badly polluted, making it unfit for use.

No. 29. Creek water; no sewage contamination; contains suspended vegetable matter, which should be removed by filtration.

GENERAL REMARKS ON WATERS AND WATER SUPPLIES.

The chief impurities found in drinking waters, as detected by chemical analysis, are of an organic nature, and arise from the presence of decomposing animal or vegetable matter, or both. The former is to be regarded as the more deleterious of the two, and comprises the solid and fluid excreta of animals, and decaying animal matter; vegetable pollution consists of peaty matter—the more or less decomposed remains of plants. Although vegetable matter is not as injurious as that of animal origin, an excessive quantity is very apt to cause diarrhoea and kindred complaints.

Whether the organic matter itself always acts in the water as a poison or not is yet a question open for discussion, though there seems to be ample evidence that in many instances active organic poisons are developed by the decomposing matter.

It has, however, been well established that it is the organic matter of a water that forms the food for the growth of bacteria—microscopic plants, among which are the disease germs—and cases of typhoid (a germ disease) have been repeatedly traced to drinking water surcharged with organic matter.

For these reasons we may safely conclude that a water containing much organic matter must be more dangerous to health than water comparatively organically pure.

It is of the first importance, therefore, to discover the degree to which any water may be contaminated by organic matter and to endeavour to establish whether such be vegetable or animal.

The amounts of free and albuminoid ammonia, of the oxygen absorbed in fifteen minutes and four hours, and of chlorine, are a measure of the organic impurities of a water.

Large quantities of free ammonia associated with a considerable amount of chlorine prove contamination with sewage.

Small quantities of free ammonia and chlorine and high amounts of albuminoid ammonia and "oxygen absorbed" indicate vegetable pollution.

The presence in considerable quantities of nitrogen in nitrates and nitrites—especially in shallow wells—indicates previous sewage contamination.

When the ratio of oxygen absorbed in 15 minutes to that absorbed in 4 hours is as 1:2, dissolved vegetable matter is indicated; when this ratio approaches 1:1.5, the presence of animal organic matter is shown. A water contaminated with vegetable matter will absorb or use up more oxygen than one polluted with animal matter.

The bright and clear appearance of a water is no guarantee of its wholesomeness. Many badly polluted waters are sparkling and cold.

As every water must be judged according to its source and surroundings, it is impossible to lay down rules that could be applied rigidly in every case, though it

has been abundantly shown that a good water, wholesome for use, should not contain more than '08 parts per million of free ammonia, nor more than '10 parts per million of albuminoid ammonia, and the amounts of chlorine and total solids should not exceed 70 and 570 parts respectively.

Those who are about to dig wells are cautioned against locating them in barn-yards and stables or near any source of pollution—and this is especially urged where the soil is sandy or gravelly. It has been proved beyond dispute that the soakage from such contaminating sources will travel comparatively long distances in light soil, and it is in such that the well will act as a cesspool.

The surroundings of the well should at all times be kept clean, and the well itself examined from time to time as to its freedom from refuse material. Vegetable *debris* and dead animals are often the cause of impure water. The latter has frequently been found on an examination of the well, subsequent to a report that the water is polluted.

As far as time permits analyses of water are made for farmers free of expense, provided that the express charges are prepaid. As the right collection of the water is a matter of great importance, those desiring an analysis are requested to write for the necessary instructions before taking the sample.

EXPERIMENTS ON THE PREVENTION OF HARD SMUT OR BUNT BY TREATMENT WITH SOLUTIONS OF COPPER SULPHATE (BLUE VITRIOL), IRON SULPHATE (GREEN VITRIOL) AND "AGRICULTURAL BLUE STONE."

In the report of this department for last year, I gave the results of a series of experiments conducted to ascertain the effect of the above solutions on the vitality of the wheat germ. The conclusions drawn from this work were briefly as follows:—

1. That the vitality of the wheat seed after being soaked for 36 hours in a solution of blue vitriol (copper sulphate), of the strength of 1 lb. to 8 gallons of water, was seriously impaired.

2. That when wheat was treated in a similar manner with a solution of green vitriol (iron sulphate)—strength 1 lb. to 8 gallons—the germ was but little affected, though the growth of the plants was at first retarded.

3. That when the seed was merely sprinkled with the solution of copper sulphate the loss of vitality was very much lessened.

4. That if wheat be soaked for 36 hours in a solution of "agricultural blue stone" (1 lb. to 8 gallons), a deleterious effect is to be noticed—evidently owing to this salt containing 30 per cent. of copper sulphate. But if the seed be sprinkled only with this solution the per cent of loss of vitality is much less.

Experiments had also been tried to find out what effect these solutions severally had in preventing the development of hard smut or bunt. These latter failed, owing to the fact that the hard smut did not appear on any of the trial plots here. Though extremely damaging to the wheat crop in Manitoba and the North-West Territories, hard smut seldom develops in this locality. For this reason it was proposed to grow the wheat, after treatment with the different solutions, on the experimental farms at Brandon and Indian Head, and note the results.

THE WORK OF 1891.

A further supply of "agricultural bluestone" was procured, and on analysis yielded the following figures:—

Sulphate of iron (green vitriol).....	69.39
do copper (blue vitriol).....	30.61
	<hr/>
	100.00

These show it to be identical in composition with that used last year.

EFFECT on the Vitality of Wheat by Smut Preventives, 1891.

Variety of Wheat, 200 grains.	Treatment.	Sown 1891.	23rd March.	25th March.	28th March.	30th March.	1st April.	4th April.	6th April.	Total.	Per-centage of Strong Plants.	Per-centage of Weak Plants.
White Cornell	Untreated	March 17.	160	174	178	179	.....	.....	.....	179	89.5	84
do	Copper sulphate	do	67	130	158	165	.....	.....	.....	165	82.5	70
do	"Agricultural bluestone"	do	82	158	180	183	.....	.....	.....	183	91.5	83
do	Iron sulphate	do	101	172	178	180	.....	.....	.....	180	90.0	87
Red Fife	Untreated	do	180	188	190	.....	.....	.....	.....	190	95.0	97
do	Copper sulphate	do	70	111	143	150	157	164	.....	164	82.0	84
do	"Agricultural bluestone"	do	104	174	193	196	.....	.....	.....	196	98.0	92
do	Iron sulphate	do	153	188	192	.....	.....	.....	.....	192	96.0	96
White Fife	Untreated	do	167	185	185	187	.....	.....	.....	187	93.5	70
do	Copper sulphate	do	50	99	130	130	139	140	143	143	72.5	70
do	"Agricultural bluestone"	do	93	156	178	185	186	.....	.....	186	93.0	69
do	Iron sulphate	do	129	177	183	.....	.....	.....	.....	183	92.5	80
Judket	Untreated	do	164	177	179	.....	.....	.....	.....	179	89.5	92
do	Copper sulphate	do	19	53	110	127	129	132	.....	132	66.0	76
do	"Agricultural bluestone"	do	83	156	168	170	.....	.....	.....	170	85.0	95
do	Iron sulphate	do	128	152	155	156	.....	.....	.....	156	78.0	95
Ladoga	Untreated	do	112	137	.....	.....	.....	.....	.....	137	68.5	82
do	Copper sulphate	do	37	79	114	116	.....	.....	.....	116	58.0	84
do	"Agricultural bluestone"	do	112	112	141	144	.....	.....	.....	144	77.0	89
do	Iron sulphate	do	138	149	151	.....	.....	.....	.....	151	75.5	94

The solutions experimented with were copper sulphate, "agricultural bluestone" and iron sulphate, each of the strength of 1 pound to 8 gallons of water.

The wheats used were White Connell, Red Fife, White Fife, Judket and Ladoga.

The treatment was merely sprinkling the grain with the solution under trial, and allowing it to dry spontaneously.

The vitality of the wheat so treated was determined in the seed-testing house, and samples of each forwarded to the experimental farms at Brandon, Manitoba, and Indian Head, North-West Territories. Mr. Bedford, superintendent at Brandon, reports that unfortunately owing to high winds that prevailed in the spring the seed was blown out of the ground, though considerable care had been taken to select a suitable plot for the experiment. Mr. Mackay, superintendent at Indian Head, met with better fortune, and his results, obtained with great carefulness, are now reported upon.

The percentage of vitality and of strong and weak plants will be found here, as also the number of growing plants upon the dates which head the columns.

On the whole, these results corroborate those obtained last year, though the differences in the percentages of vitality, in some instances, are not so marked. This is probably due to the fact that the treatment this year was not so severe as in some of the experiments of last season, in which the seed was allowed to dry 13 days before sowing. In these experiments the seed was planted immediately on becoming dry. It would seem, both from the work of 1890 and 1891, that the deterioration of vitality was to a certain degree measured by the length of time the seed was allowed to dry after sprinkling with the copper solutions.

The table makes clear that the ultimate effect upon the seed by solutions of agricultural bluestone and iron sulphate, when used as explained and of the strength given, is so small that it may be disregarded; or, in other words, that owing to the injury to the vitality being so slight, no objection could be raised to such treatment, granting that it were efficacious in preventing smut.

The loss of vitality due to copper sulphate solution, averaging the above experiments, is equal to 15 per cent.

The retarding effect on the germination and growth of the young plant by treatment with these solutions is again well brought out. This is most marked in the case of copper sulphate and least in that of iron sulphate. That of the agricultural bluestone is between the two, a position evidently the result of the copper contained in this article. As remarked in my last report on this subject, the plants from treated seeds become vigorous and robust after the roots had assumed their functional activity.

EFFECT ON THE PREVENTION OF SMUT.

Three ounces of each sample of grain, treated and untreated, were sent, in March last, to Mr. Angus Mackay, Superintendent, experimental farm, Indian Head, N.W.T., with a request that they be sown on 100 square feet of soil (at the rate of $1\frac{1}{4}$ to $1\frac{1}{2}$ bushels to the acre), and the good and smutty heads thereon counted before harvesting. Mr. Mackay has very carefully conducted this work, and I now give his results:

RESULTS obtained at the Experimental Farm, Indian Head, 1891, showing the value of certain Smut Preventives.

Variety of Wheat.	Treatment.	No. of Smutty Heads.	No. of Good Heads.
White Connell	Untreated	6	3,479
do	Copper sulphate	7	3,422
do	"Agricultural bluestone"	3	3,942
do	Iron sulphate	6	3,575
Red Fife	Untreated	164	3,189
do	Copper sulphate	1	4,420
do	"Agricultural bluestone"	7	3,983
do	Iron sulphate	168	3,722
White Fife	Untreated	10	3,690
do	Copper sulphate	0	3,840
do	"Agricultural bluestone"	0	3,810
do	Iron sulphate	2	3,595
Judket	Untreated	49	3,905
do	Copper sulphate	1	3,760
do	"Agricultural bluestone"	0	3,850
do	Iron sulphate	38	3,960

To discuss briefly these results :

In the case of the "White Connell," the number of smutty heads is very small, and no great difference is to be noted between the treated and untreated grain in this particular. This experiment gives no data from which any inference may be drawn as to the relative efficacy of the solutions.

The Red Fife, however, shows a fairly large number of smutty heads in the untreated sample and affords an excellent example for the study of this question. The number of smutty heads is practically the same in the untreated and iron sulphate experiments. By the action of copper sulphate, this number was reduced from 164 to 1 and by agricultural bluestone from 164 to 7. The value of copper sulphate (blue vitriol) and agricultural blue stone and the inefficiency of iron sulphate for destroying smut seems to be here well emphasized.

With White Fife, although the numbers throughout are small, like results are obtained, and the inferences with regard to the relative smut-destroying powers of the solutions are the same as with the Red Fife.

The experiments with Judket give similar results, with slight reduction in the number of smutty heads when treated with iron sulphate. Practically there is no appearance of smut after copper sulphate and agricultural bluestone.

Therefore these experiments, while serving to prove the efficacy and almost equal worth of copper sulphate and agricultural bluestone, go to show that for destroying smut spores, iron sulphate is almost valueless.

These experiments will be continued during the season of 1892.

A strong solution of bluestone if in contact with wheat for a long time will undoubtedly affect the vitality of the latter, but as the experiments just cited show, a treatment such as I have described results only in benefit. The small amount of loss due to this treatment in some instances is not to be compared with the advantage accruing from having wheat free from smut, which follows the use of bluestone.

EFFECT OF COPPER SOLUTIONS UPON THE FERTILITY OF THE SOIL.

An article lately appeared in a leading horticultural paper on what was held to be the deleterious action to the fertility of the soil from the copper in the solu-

tions used as fungicides. It was there shown that, in the spraying of large orchards, a considerable quantity of copper sulphate was used annually, and it was maintained that this would accumulate in the soil—as it all eventually finds its way there—and finally there was very great danger that this would sterilize or render barren the soil.

At the request of several correspondents, who were anxious to know how far these statements were correct, I made a report thereon, the substance of which I now insert as affording some information to orchardists on this important subject.

Properly applied, *i.e.*, at the right time and in the correct proportions, the copper fungicides have proved and are proving themselves to be of inestimable benefit in the orchard and in the vineyard. The increased value of the fruit has more than repaid, by a large margin, the outlay for spraying apparatus and materials and cost of application, and I believe the time has come when no fruit-grower can afford to ignore this useful means of preventing fungus diseases. Not the least important element in successful fruit growing, now-a-days, is keeping in check fungus growths and destructive insects, and, for this purpose, our present hope lies in the application of arsenical and copper solutions. By the more extended use of them the hope is confidently entertained that the loss occasioned by injurious insects and fungi will be greatly lessened year by year throughout the Dominion.

The danger to the fertility of the soil by the use of fungicides has, by some, been unduly magnified. In the first place, the large quantity of fungicides as recommended heretofore for each acre of trees per annum (400 gallons containing 108 lbs. of copper sulphate)* is considered by many of the best authorities as unnecessary. Three or four sprayings are equally efficacious with a larger number, provided the operation is begun early enough in the spring. Granting that each application requires, per acre, about 30 gallons, the total quantity of Bordeaux mixture per acre for the season would be between 90 and 120 gallons, containing from $24\frac{1}{2}$ lbs. to $32\frac{1}{2}$ lbs. of copper sulphate.

Secondly, Bordeaux mixture has to a very large extent been replaced by copper carbonate, either dissolved in ammonia—known then as ammoniacal copper carbonate—or applied simply in suspension. When applied in suspension or dissolved, the amount of copper carbonate per 25 gallons of water is two ounces—a quantity containing the same amount of copper as four ounces of copper sulphate. (Directions for preparing these solutions are to be found in Bulletin 10 of the Experimental Farm series.) Spraying with the fungicides, each acre of vines would receive during the season the equivalent of 1 lb. to $1\frac{1}{4}$ lbs. of copper sulphate. It is thus made manifest that by this treatment—one highly recommended by those who have had experience with it—no such quantity as 108 lbs. of copper sulphate is required per acre.

By far the greater amount of copper that reaches the ground is in a condition that is insoluble in water, or becomes so after a short time. In the case of Bordeaux mixture, I would point out that copper sulphate, as such, ceases to exist immediately after the addition of the lime, sulphate of lime (land plaster) and an insoluble compound of copper resulting. The argument, therefore, that the sulphuric acid of the copper sulphate immediately combines with the potash of the soil, which is subsequently lost, does not hold good. The sulphate of lime does, to a limited extent, set free potash in the soil, in a condition assimilable by plants, and on account of this beneficial function land plaster is often used as a fertilizer. The presence of minute quantities of an insoluble copper compound cannot, in my opinion, affect disastrously the fertility of a soil, nor act as a poison to plants. The acid fluids secreted by rootlets may have the power of rendering such soluble and thus capable of absorption, but unless the soil were heavily charged with copper compounds no evil effects from this cause need be anticipated. Plants can only absorb into their tissues fluids and gases, and although they have the power to a limited extent of rendering soluble certain substances, insoluble compounds, such as oxide and carbonate of copper, are for the most part harmless and inert.

* Bordeaux mixture contains 6 lbs. copper sulphate and 4 lbs. of lime in 22 gallons of water. The lime neutralizes the caustic effect of the copper sulphate, rendering the mixture innocuous to foliage.

For many years the application of Paris green (arsenite of copper, insoluble) has been in use for the destruction of the Colorado potato beetle. If the copper of such became and remained easily soluble, thousands of acres would long ere this have been rendered barren.

To sum up, my contention is that the copper which reaches the ground from properly conducted spraying is so minute in quantity and so insoluble in nature that no fear need be entertained of injury to growing vegetation. It certainly seems to me that it would be very foolish to relinquish so patent a means of preserving our orchards and vineyards and their fruit, before science and practice proclaimed the true nature of such to be a curse rather than a blessing.

THE APPLICATION OF PARIS GREEN IN SOAP SOLUTION AS AN INSECTICIDE.

The question has arisen whether the toxic action of Paris green as an insecticide is to any extent weakened or destroyed when this poison is applied with soap solution. For the purpose of answering this problem, I have carried out a number of laboratory experiments, the results of which form the basis of the present report.

Paris green (aceto-arsenite of copper) is an emerald green salt which is practically insoluble in water. The first experiment consisted in shaking up Paris green with water constantly for more than a week. The Paris green was then filtered off. Not a trace of arsenic could be detected in the filtrate, though the most delicate chemical process was employed.

Strong ammonia readily and completely dissolves Paris green, forming a deep blue solution and capable of being diluted with water, without decomposition or precipitation.

The fixed alkalis—potash and soda—in strong aqueous solution decompose this poison, the blue hydrate of copper separating. This on heating first becomes changed into the black oxide, and finally the red cuprous oxide, the arsenic going into the solution as potassium arsenite.

A number of experiments were then tried as to the solvent action of different soap solutions on this insecticide. The soaps used were (1) whale oil soap, (2) common brown soap, (3) "English" soft soap.

The whale oil soap, strength 1 lb. to 8 gallons, was not alkaline to test paper. The Paris green was shaken up with this solution repeatedly for five days and the mixture then filtered. Not a trace of arsenic could be detected in the filtrate, showing that no decomposition of the Paris green had taken place. The latter retained its bright green appearance throughout the experiment.

The solutions of the "common brown soap" and the "English" soft soap were not of any stated strength, but were made as strong as it was possible to make them. By this means a severe and extreme test was made in each case.

The common brown soap was strongly alkaline. This solution after acting upon it for five days was found to slightly decompose the Paris green, arsenic being detected in the filtrate. The residual Paris green was, however, bright green, which together with the fact that but traces of arsenic passed into solution, shows that only to a very slight degree had the poison been acted upon.

With the "English" soft soap solution, which was much more strongly alkaline than the preceding, there was more decomposition, *i.e.* more arsenic passed into solution and more copper precipitated than in the experiment just cited. The treatment was similar as in the previous trials, and the result showed that heavy traces of arsenic had passed into solution, while at the same time a slight brown deposit of oxide of copper was to be noticed on the residual Paris green.

If it were necessary for the efficacy of the poison that the Paris green be applied in such liquids as would have no decomposing or solvent action upon it, the results of these experiments show that no practical harm or deterioration would result from using it with soap solution. When it is remembered, however, that Paris green, although insoluble in water, passes more or less rapidly into solution by the action of

the digestive fluids before its toxic effects can be conveyed throughout the insects' body by the circulatory system, there seems to be no good ground for condemning an application in which traces of arsenic are already soluble. The chief reason against the use of white arsenic is on account of its injurious effect on foliage—it being soluble in water and acid in its character. The arsenic set free in the soap solution is neutralized by the free alkali of the soap, so that where soap solution can be used *per se* without harm, no injurious results need be apprehended when to it is added the Paris green in the right proportion.

In all the above experiments the soap solution was at the ordinary temperature of the atmosphere when added to the Paris green. If heat had been used undoubtedly a larger portion of arsenic would have gone into solution.

THE RESULTS OF AN EXPERIMENT TO PROVE THAT APPLES ARE NOT POISONED BY SPRAYING WITH PARIS GREEN FOR CODLING MOTH.

A statement appeared a short time ago in a horticultural paper published in Great Britain to the effect that Canadian apples contained a small quantity of arsenic and were consequently poisonous. This, it was said, was due to our practice of spraying with Paris green after the petals have dropped, in order to preserve the fruit from the ravages of the codling moth. This assertion received wide circulation in the British press and was calculated to do a great deal of harm to the Canadian export apple trade. It is not the first time that a rumour to this effect has been set afloat, either by interested or ignorant people. That the suspicion is entirely without a foundation has been asserted by scientists and practical men in Canada and the United States on several occasions. Hitherto, however, no chemical work has been done in Canada to place before our horticulturists and shippers, as well as the British people, scientific proof for refuting the statement.

Mr. James Fletcher, Dominion Entomologist, therefore procured a sample of apples that undoubtedly had been sprayed, and I submitted them to a careful chemical analysis. The apples examined (Rhode Island Greenings) were kindly furnished by Mr. Woolverton, editor of the *Canadian Horticulturist*, who personally vouches for the fact that they were twice sprayed last June with Paris green of the strength of 1 lb. of the material to 200 gallons of water. The apples when received were just as they had come from the trees, *i.e.*, had not been rubbed, so that any arsenic left from the spraying would still be on the skin.

The quantity tested for arsenic was 9 lbs. 7 ozs., measuring about one peck. The process to which they were submitted is one that affords extremely accurate results, and is considered the most delicate of all for the detection of arsenic. It is capable of revealing the presence of one fifty-thousandth part of a grain of arsenic. If 23,000 bushels of apples contained $2\frac{1}{2}$ grains of arsenic (As_2O_3), the minimum fatal dose for an adult, the poison could have been detected by this method.

Though all care was exercised not a trace of arsenic could be detected, thus showing the complete absence of this poison in these apples that had been twice sprayed with Paris green.

I am of the opinion that further experiments of this nature would only serve to corroborate this negative result and to prove that there are no grounds on which to base a suspicion that our sprayed apples are poisonous.

The insoluble character of this poison, precluding its assimilation by the apple if such were possible, the infinitesimal part of Paris green that can remain on the apple, the frequent rains subsequent to the spraying, and the fact that apples are pared before using, all go to substantiate the argument that there is not the slightest danger of poisoning in using sprayed apples.

REPORT OF THE ENTOMOLOGIST AND BOTANIST.

(JAMES FLETCHER, F.R.S.C., F.L.S.)

WM. SAUNDERS, Esq.,
Director Dominion Experimental Farms,
Ottawa.

SIR,—I have the honour to hand you herewith a report upon some of the work carried on in my department during the past year. Owing to want of assistance and facilities for work, many things which might have been attended to have been held over for the present. I have treated at some length certain of the more important subjects which have been brought officially under my notice.

DIVISION OF ENTOMOLOGY.

There has not been, during the past season, any attack upon crops of special severity. Fruit pests have probably demanded more attention than any other class, owing to the exceptional abundance of such apple-tree pests as a new species of case-bearing caterpillars, the Eye-spotted Bud-moth, the Oblique-banded Leaf-roller, and in certain districts of the Autumn Canker-worm. A new attack of some interest by the last-named insect was upon the ash-leaved maples used as shade trees in the city of Winnipeg. This, however, could of course be easily prevented by a timely spraying with a weak mixture of Paris Green. The Vancouver Island Oak-looper, which has now for some years stripped the oak trees around the city of Victoria, was during the past autumn much reduced in numbers by the attacks of a fungous disease which has been kindly identified by Professor Roland Thaxter as *Sporotrichum globuliferum*, Spegazzini, a fungus which has done good service in reducing the Chinch bug in Illinois and other States. It also attacks many other insects, and has been used by Professor Forbes in his late experiments upon Chinch bugs, *Cecropia* moths, the Grain Aphis and other plant-lice and some saw-fly larvæ. (Ill. Rep. XVII, p. 82.) Bark of oak trees sent from Victoria early in 1891, by Mr. W. H. Danby, who has given me much assistance in working out the life history of this pest, contained thousands of good eggs of the moth from which these caterpillars were hatched. A similar packet of bark received this winter contained a great number of dead caterpillars and chrysalids, all attacked by the fungus, and so few eggs that I could not find one. Later in the winter, however, seven specimens of caterpillars were secured. There must, therefore, have been some cause for the great diminution in the number of eggs laid, which cause I judge to be this fungus. Field crops all over the Dominion have as usual suffered to a certain extent from the various kinds of Cut-worms. *Agrotis ochreogaster* (= *A. turris*), a large and voracious caterpillar, when full grown $1\frac{1}{2}$ inches in length and of the usual dull colours, but bearing on its back a broad reddish stripe, has been very injurious in many places, extending from Ottawa as far west as Calgary. In the Ottawa district *Noctua fennica*, the "Black Army-worm," was again this year very abundant and destructive, particularly to clover, pease and asparagus. Spreading from a clover field on the Experimental Farm they over-ran, about the third week in May, nearly three acres of a pea field, which they swept almost bare. This attack was stopped promptly by spraying a strip 50 feet wide, ahead of the caterpillars, with Paris green, 1 lb. in 100 gallons of water, by means of Knapsack sprayers.

The Grain Plant-louse (*Siphonophora avenæ*), occurred in small numbers as usual. Sensational accounts in the newspapers proved upon enquiry all to be gross exaggerations. The Tomato Stalk-borer (*Gortyna cataphracta*) was slightly more abundant

than usual, and a new attack upon tomatoes was observed by Mr. W. J. Baylay, of New Edinburgh, in which the plants were cut off by being girdled by the punctures of the Buffalo Tree-hopper (*Ceresa bubalus*.)

Some injuries reported to have been done to potatoes by the Colorado Potato-bug in the west proved to be due to two of the Blister-beetles (*Epicauta Pennsylvanica*, De G.), in Manitoba and *Epicauta maculata* (Say), in British Columbia. This latter is a very serious pest. Mr. C. F. Cornwall writes from Ashcroft, B.C. : "I send you specimens of what we call the grey beetle. It is a most destructive insect pest in this neighbourhood, generally putting in an appearance by the middle of May and lasting till the middle of August. It arrives in enormous numbers very suddenly. In cool weather it is sluggish, and can be brushed from the vegetation into an old coal-oil tin or other receptacle. It is only in this way that it can be prevented from regularly eating up such things as beet-root, spinach, Windsor beans, potatoes, &c. I have seen many acres of field potatoes with the haulms actually stripped of every green leaf by this beetle."

Hops in Prince Edward county were attacked by a species of *Gortyna*, the eggs of which are laid on the young shoots, and the young caterpillars after a while drop to the ground and attack the plant at the collar, just beneath the surface of the soil. I am now at work on this pest with the valuable assistance of Mr. S. J. Cotter, of Northport. The Hop Aphis occurred in small numbers in Ontario and up the Fraser River in British Columbia.

A new pest of turnips and radishes in the North-West Territories and Manitoba I have reported on at length in another page of this report.

Some false reports with regard to the supposed danger of spraying with Paris Green I have thought it well to notice, and Mr. Shutt has kindly analysed with great care some apples procured for the purpose, which prove conclusively that there is no danger in this practice; but, on the contrary, great advantage to both the grower and the consumer of fruits. Many of the pests of the orchard and garden can be kept in check only by this useful, cheap and well-known material. With proper care there need be very little danger in any way from its use; and from its possible absorption by any plant there certainly is none whatever. It has been found useful during the past year, not only in fighting the innumerable orchard pests, but has been used on a most extended scale in the State of Massachusetts, where a moth introduced twenty years ago as a producer of silk, and known as the Gypsy moth, has gradually increased until it has now spread over about 50 square miles as a perfect scourge. The Government of the State has appointed a commission to try and exterminate this pest, and in 1890 appropriated \$50,000. In 1891 the work was put under the direction of a competent entomologist, Prof. Fernald, and further large appropriations of money were made. Prof. Fernald writes to me that the work is going on very satisfactorily, and that the State is making a magnificent fight with this moth, and that they have the advice of the ablest and wisest entomologists in the country. Up to the present the appropriations voted by the State of Massachusetts since 1890 amount to \$175,000.

The value of Paris Green as an insecticide is now recognized all the world over, and it is largely used in England, Germany, France, Australia and India.

DIVISION OF BOTANY.

Some work has been done during the year in augmenting the number of shrubs and trees in the arboretum and in growing native plants from seed. A magnificent collection of seeds of wild plants from the North-West Territories has been received from Mr. T. N. Willing, of Calgary, N.W.T.; and Dr. J. E. White, of Toronto, has also sent seeds of many rare plants found in Ontario. Mr. J. R. Anderson, statistician of the Department of Agriculture in British Columbia, has sent a collection of living roots of ferns from his province, and has also rendered much assistance in sending me specimens and information concerning injurious insects. Prof. Macoun has again sent some seeds of rare plants for cultivation. Some of the above were sown last autumn and the rest will be planted this spring.

Fungous diseases have received such attention as I could find time for. The ammoniacal solution of Copper Carbonate was found perfectly satisfactory for the

Brown Rot of the grape (*Peronospora viticola*), in the vineyard of Mr. J. Lowe; and where, in the year 1890, hundreds of pounds of grapes were destroyed, this year, when treated three times, there were not 10 lbs. of diseased grapes. The use of the Bordeaux mixture in the treatment of the Potato Rot has proved also satisfactory, and I hope during the present season to have facilities for proving to farmers the good effects of this simple remedy.

I have the honour to be, Sir,

Your obedient servant,

JAMES FLETCHER,

*Entomologist and Botanist
to Dominion Experimental Farms.*

DIVISION OF ENTOMOLOGY.

SPRAYING WITH THE ARSENITES.

The great improvement in the quality of American and Canadian fruit, consequent on the adoption of spraying with the arsenites, is very remarkable. Two years ago, through the efforts of Miss E. A. Ormerod, largely helped by the sudden appearance of vast numbers of caterpillars in the orchards of the south of England, the English fruit-growers learnt and quickly adopted this method of fighting leaf-eating insects. Anything so successful as this at once proved to be was naturally taken up readily, and now Miss Ormerod informs me there are numberless spraying machines and patent remedies in the market, all of which owe their existence to the introduction of Paris Green. Mr. C. D. Wise, the manager of the large fruit farm at Toddington, Winchcomb, Gloucestershire, England, writes me under date 19th May, 1890: "We have tried many experiments this season with various insecticides, including Paris Green and London Purple, and we have found that Paris Green is undoubtedly the best. London Purple is inclined to scorch the foliage. Our prospects for fruit this season are on the whole very good, and I think we have fairly overcome the caterpillar, thanks to greasing the trees in the autumn and the use of Paris Green for the past three or four weeks."

Quite recently a London, England, paper, which styles itself a "high-class weekly review," has gained for itself an unenviable notoriety by publishing some untrue and very absurd sensational articles under the heading "Arsenic in American Apples." The first of these was widely copied in the English press and commented upon by the press of this country. It is possible that these articles, having been so widely copied, may have affected temporarily the sale of American apples in the English market; but the English are not as a rule a very gullible race, and particularly is this the case when by such credulity they would be deprived of the very best quality of a commodity which they wish for, and which their common sense will assure them may be safely indulged in, until such time as the safety is proved to them positively by chemical analysis. In a later issue this paper makes it very clear that its whole object in issuing these articles was to get cheap advertisement from its contemporaries. The following headings in this very article speak for themselves: "Our allegations as to the poisonous nature of American apples arrest the attention of dusky fruit-growers in the banana groves of India."—"Our articles appear and are commented upon by the press of every country under the sun."—"We have no doubt we shall be able not only to claim but to prove that our articles have *encircled the earth*."—"We claim that we have a world-wide circulation."

There are several misstatements made, such as the following: "The use of poisonous insecticides by American fruit-growers is upon the increase. They apply them to all kinds of fruits grown, and to such an extent that the authorities have again and again protested"—(N.B.—We are not told where)—"against the danger of the nature of the compounds used. Why, only recently, the New York City

Board of Health condemned grapes in the market that showed signs of poison on the stems and had tons of them destroyed."

"The officials not only had some tons of fruit that has been treated with arsenic in the manner we described seized, but destroyed."

"It is admitted that the American apple-growers are compelled to depend upon the use of arsenic in solution as an insecticide in their orchards; that this insecticide is used upon the fruit itself until it is completely saturated."

This last extract is so utterly ridiculous and false that it will be hardly necessary to say so to intelligent people. It is false that arsenic in solution is used by apple-growers; it cannot therefore be admitted to be the case by any one competent to express an opinion, Paris Green, the arsenite commonly used, being practically insoluble in water. It is also quite impossible for fruit to become saturated with any poison, however soluble, sprayed on it, while it is growing. In his yearning for notoriety the editor becomes reckless, and prints as a proof of how large his circulation is, a perfect refutation of his statements in an excellent article from the *Michigan Farmer*, where it is shown that the grapes seized and destroyed by the New York Board of Trade not only had not been sprayed with an arsenical insecticide at all, but with a carbonate of copper fungicide, quite a different thing; and, moreover, it goes on to say, the editor "does not seem to be aware that the United States Department of Agriculture promptly investigated that grape business, that the fruit was analysed by the most eminent chemists of the country, and the conclusion arrived at, that if a man managed to eat a ton of sprayed grapes he could not get enough poison to ensure a funeral, and that under the showing made, the city of New York had to pay for the fruit destroyed in the mistaken zeal of the Board."

The question of the possibility of poisoning the consumers of fruit or plants has so often come up that entomologists have fortified their position from time to time by getting analyses made, and these all have failed to show a trace of arsenic in the plants treated. On discussing the matter with Mr. Shutt, the Chemist to the Dominion Experimental Farms, we decided that it would be serviceable and reassuring to Canadian fruit-growers if a new analysis were made of Canadian apples, concerning which undoubtedly true data as to their having been actually sprayed could be obtained. As a result, the following letter was written to the *Canadian Horticulturist* for April, 1892.

"IS SPRAYING FRUIT TREES WITH ARSENICAL POISONS A DANGEROUS PRACTICE?"

"SIR,—I have received several enquiries from correspondents concerning the foolish and inaccurate statements made upon the above subject, which you refer to on page 83 of your last issue. I therefore beg a little space to submit a few facts which, although well known to many of your readers, may be reassuring to others. In the first place, spraying with the arsenites, through the energy and perseverance of Miss Eleanor Ormerod, the Entomologist of the Royal Agricultural Society of England, is now almost as much practised in Great Britain as it is in this country. It is true that it was introduced as a practical method only two years ago, but through the skill of the introducer, and following the publication and distribution of the report of a special committee, composed of leading fruit-growers, and known as the "Experimental Committee of the Evesham Fruit Growers," spraying with Paris Green is now largely adopted in many parts of the British Isles as the best means of keeping down the ravaging hordes of caterpillars which were rendering futile the labours of the fruit-growers throughout many of the most fertile counties in England. The value of spraying with Paris Green is now fully recognized in England, and will never be given up again for the old methods. As to the possibility of any danger resulting from the practice by the consumption of sprayed fruit, I can only say that entomologists have, with the scientific aid of their colleagues, the chemists, shown over and over again that no danger whatever exists, if only the directions of experienced advisers are carried out. At the meeting of the Dairymen's Association of Western Ontario, held at Brantford on 15th January last, this subject came up, and the absurdity was pointed out of such ideas as you have referred to as published by your English contemporary. As soon as I returned to Ottawa I endeavoured to

obtain apples which had been undoubtedly sprayed in accordance with the instructions given by entomologists, and at last, through your own kindness, succeeded. These, upon receipt, were kindly taken in hand at once by Mr. F. T. Shutt, Chemist to the Dominion Experimental Farms, and analysed with the greatest care. I send you herewith for publication his report. Coming from so high an authority, I feel sure it will be of interest to all fruit-growers."

Here followed Mr. Shutt's results, which are given in full on page 189 of this report. This analysis showed that some Rhode Island Greenings, which were obtained from the editor of the *Canadian Horticulturist*, and which he had twice sprayed in the month of June with Paris Green, in the proportion of 1 lb. to 200 gallons of water, when analysed by a most delicate method, capable of showing one fifty-thousandth part of a grain of arsenic, had it been present, revealed not the slightest trace of that poison. Further, in addition to the above, I may perhaps be allowed to give an extract from my own report to the Hon. Minister of Agriculture, for 1887, page 21:

"Frequent enquiries are made, and occasionally mistatements appear, as to the possible danger of poisoning the consumers of fruit and crops, protected with these arsenical poisons, which it is urged may be absorbed by the plants. These statements, however, are quite inaccurate, as a very elementary knowledge of vegetable physiology will show. Fear is expressed that when apples are treated for the Codling-moth the poison may be absorbed through the stigma and laid up in the seeds. With regard to this statement, it should be remembered that the stigma of a flower is without any epidermis, and is exceedingly delicate, so that any corrosive poison, like arsenic, in even a very weak solution, would be much more likely to injure the stigma than to be absorbed, and further than this, even in the natural operation of fertilization, the stigma is a passive member, and absorbs nothing. The activity is on the part of the pollen, which pushes out its fovilla-bearing pollentubes and protrudes them through the tissues of the stigma, down the style into the ovary." In corresponding on this matter, Prof. Forbes says: "Of course, you will have no trouble in proving by the highest authority that there is no possibility of the poisons being absorbed by the plants," which statement, with the following letter from Prof. A. J. Cook, should, I think, set this contention at rest:—

"I experimented twice extensively to find out the truth—first in 1880, when I had fifty apples analysed, which were very thoroughly sprayed; poison was carefully thrown on each fruit—with one pound of pure Paris Green to 50 gallons of water—four times as strong as necessary—in May. Chemical analysis in August found not a trace of poison. Another lot of fifty was analysed with the same result."

In short, all analyses have shown that practically there is no danger whatever in spraying fruit trees if ordinary common sense precautions are taken. In conclusion, let me add the following extract taken from the Boston *Transcript* of 1st January, 1892, which is a report of a lecture delivered by Prof. C. V. Riley, the United States Entomologist, undoubtedly the most eminent economic entomologist living:—

"The conclusion of the lecture was particularly appropriate and reassuring, as it dealt with the possibility of danger in the use of arsenical poisons, and the lecturer showed how perfectly safe and incapable of harm they are, if used intelligently and in accordance with the recommendations of those who had large experience in their use. He referred to the scare of last autumn in reference to grapes that were supposed to have been poisoned by spraying, and exposed for sale in New York city, and stated that the alarm, as the Department of Agriculture had showed, was entirely unjustified. 'In no instance,' said Professor Riley, 'is there an authentic case of poisoning through the use of plants or fruits that have been treated, and I wish to emphasize this fact, because almost every year there are statements in the press that are well calculated to alarm and engender the belief that we are in danger of wholesale poisoning by the increasing use of these arsenites.' The latest sensational report of this kind was the rumour, emanating from London, within the last week, that American apples were being rejected for fear that their use was unsafe.

If we consider for a moment how minute is the quantity of arsenic that can, under the most favourable circumstances, remain in the calyx of an apple, we shall see at once how absurd this fear is; for even if the poison that originally killed the worm remained intact one would have to eat many barrels of apples at a meal to get a sufficient quantity to poison a human being. Moreover, much of the poison is washed off by rain and some of it thrown off by natural growth of the apple, so that there is as a rule nothing left of the poison in the garnered fruit. Add to this the further fact that few people eat apples raw, without casting away the calyx and stem-ends, the only parts where any could, under the most favourable circumstances, remain, and that these parts are always cut away in cooking, and we see how utterly groundless are any fears of injury, and how useless any prohibitive measure against American apples on this score."

THE EYE-SPOTTED BUD-MOTH.

(*Tmetocera ocellana*, Schiff.)

Attack.—Early in the spring, a small, dark brown, caterpillar, about $\frac{1}{4}$ inch in length, with head and collar black, and having the body dotted with small protuberances, each of which bears a slender short hair, is found destroying the fruit buds of apple, pear, plum, and some other trees belonging to the large Rose family. Frequently, having destroyed the flower buds, these little caterpillars do much harm by boring down the centre of the twig.

In 1885 I found in Nova Scotia some small larvæ, enclosed in silken cells, which they had spun in the roughnesses of the bark of fruit spurs upon apple trees. Upon one or two occasions last year the method of passing the winter of this insect was discussed at scientific meetings, but there seemed to be doubt about the matter. This winter I have made careful search upon apple trees and upon some twigs, which were sent to me by Dr. Young, bearing the larvæ of a small Coleophora. In every case I have been able to find the larvæ of this moth enclosed in small silken cells, covered over with, apparently, the excrement of the caterpillar, so that I am convinced that for this part of Canada and Nova Scotia, this is the usual mode of passing the winter. In early spring these small caterpillars leave their cells and crawl to the nearest opening buds and begin their aggravating work of destruction. Later they attack the leaves, two or three of which they attach together. During the past season the Eye-spotted Bud-moth has been very abundant, so much so that it has probably been the most notable injurious insect of the season. During May and June many letters were received:

"May 6.—I send you to-day apple-blossoms. You will find in them a small, black worm, which is cutting them before they open. These blossoms were picked off my place in the township of Grantham, county Lincoln."—F. G. STEWART, *Homer, Ont.*

"May 25.—Enclosed find specimens of leaves containing little, brownish-coloured grubs. They are found near the points of twigs of both plum and apple trees. They are sometimes found in a little whitish covering, surrounded by a curled leaf. They are quite numerous, as many as half-a-dozen being taken from a two-year-old tree."—F. MULHOLLAND, *Yorkville, Ont.*

"May 25.—I send you a few peach buds, which have been destroyed by a small, brown worm, from $\frac{1}{8}$ to $\frac{3}{8}$ of an inch in length. They seem to be more destructive on the smaller and younger trees than large ones. We also find the same worm in both plum and pear trees. My neighbours are also noticing them in their trees."—GEO. LENTZ, *Bartonville, Ont.*

"May 28.—The bud-moth, of which I spoke to you in a former letter, has been exceedingly abundant in this section this spring, every tree being disfigured by its attacks. I think we must be careful to take steps to destroy it another spring, or it will materially lessen our crop of apples, pears, quinces and peaches."—L. WOOLVERTON, *Grimsby, Ont.*

"June 19.—The apple bud-worm, which I find plentifully destroying the blossoms on my trees, is not confined to any one kind. It is even on the quinces."—Rev. F. J. H. AXFORD, *Port Williams, N.S.*

"June 17.—By this mail I send you samples of a worm that is not generally known here; in fact, I have not observed it before. These were taken from a garden at Port Williams, and I hear of it in several other localities. The owner of the garden where I got these, says he has picked and burned about a peck of these leaves containing worms. They seem to roll and seal themselves up in the leaf, which becomes dead and dry. In some cases they eat the young wood. I shall be glad if you can give us any information about this pest, which may prove troublesome. I have advised Paris Green. Your Bulletin 11 is to hand, and is what was wanted by everyone."—C. R. H. STARR, *Wolfville, N.S.*

"June 31.—I send you enclosed in a box some caterpillars taken from my cherry trees, to which they are doing much harm by destroying the blossoms and buds; they are also in the apple buds, and are much more plentiful than last year. Some Gravenstein trees show quite a brown appearance, and they have killed a large percentage of the blossoms, so that the trees will have but a small crop of fruit."—E. E. DICKIE, *Cornwallis, N.S.*

From the fact that the larvæ pass the winter half-grown, on twigs, they are able to do a great deal of harm by attacking the buds and boring into them early, before the leaves unfold. The only remedy that can be recommended is to spray the trees directly the buds open, and again after the flowers have fallen. Kerosene emulsion sprayed three times over trees, upon the twigs of which they were in winter quarters inside their silken tubes, had no effect upon the larvæ, having failed apparently to penetrate through the silken covering. Although like the Leaf-rollers they enclose themselves in cases made of leaves drawn together, they have to continually draw in fresh material, and I found last season that where an orchard was severely attacked at the same time by this insect, the Canker-worm (*Anisopteryx pometaria*, Harris), the Lesser Apple-leaf Roller (*Teras malivorana*, Le B.), and the Oblique-banded Leaf-roller (*Cacæcia rosaceana*, Harris), all were much reduced in numbers by a single spraying with Paris Green.

The moth is of an ashy grey colour, with a milky-white blotch on each wing. The eggs, which are remarkably flat, are laid in July, and the young caterpillars grow very slowly, and pass the winter half-grown on the twigs, and, according to Prof. Fernald, also on the ground amongst the fallen leaves.

NOTE.—Upon applying to Prof. J. H. Comstock for his experience, as to the hibernation of this insect, he kindly requested his assistant, Mr. Slingerland, who has made a special study of the Eye-spotted Bud-moth, to write to me on the subject. Since the above was sent to the printer, Mr. Slingerland has very kindly sent me a complete record of his observations, which I trust will soon be published. I am permitted to say that his experience entirely confirms my own, the larvæ leaving the leaves in September when half-grown, and spinning upon the twigs winter shelters, whence they emerge the following spring and attack the opening buds.

THE CIGAR CASE-BEARER OF THE APPLE.

(*Coleophora*, New Species.)

Attack.—Small orange-coloured caterpillars with black heads and dark feet, encased in brown leathery cigar-shaped cases, which they carry about with them. They attack the leaves of apple, pear and plum trees, by eating a small hole through the epidermis and then feeding on the *parenchyma* or soft substance of the leaf, which lies between the upper and lower surfaces, protruding their bodies a long way out of the cases, and eating for some distance around the central hole. When they have consumed all they can reach they move to a fresh place and make another hole. The brown cases are very tough and have some of the hairs from beneath the leaves attached to them exteriorly; at the upper end the case is contracted abruptly into a 3-limbed-star-shaped orifice, the lips of which fit closely together—through this hole the excrement is ejected and ultimately the moth makes its exit. The

larvæ and the slender dark brown chrysalides are about four millimetres in length, the case six millimetres. There is only one brood in the season. The small shining, teal-grey moths appear at the end of July and the beginning of August, and lay eggs which hatch the same season and make about $\frac{1}{4}$ their growth before winter sets in. After feeding for a time, they fasten themselves to the bark of the tree and remain dormant till spring, when they revive and attack the new foliage.

This insect was first brought to my notice in 1889, when the late Mr. Wm. Brown, of Charlottetown, P.E.I., amongst others, sent me some larvæ from his plum trees, upon which they were abundant. Mr. Brown had also found them upon one "Brockworth Park" pear tree and upon some apple trees. In June last, Dr. D. Young, of Adolphustown, sent me specimens and wrote ;—

"June 14.—I send you to-day some small caterpillars in their cases; one end of the case is open, and the caterpillar seems to fasten to the apple leaf and then feasts away upon it. Most of the leaves of the Duchess, Golden Russet, Northern Spy, Talman Sweet, &c., have them upon them, and often half a dozen on a leaf. They are here by millions and are destroying the leaves rapidly. We have been spraying them this week with Paris Green (1 lb. to 200 gallons), and think that a portion of them are gone from the leaves of trees sprayed a couple of days ago."

"June 24.—Having examined the worm and its work under the microscope I found that it fed chiefly on the inside of the leaf; but that, to reach that part, it ate a little of the epidermis first, every time it attacked a fresh part of the leaf, which seems to be frequent; we therefore from this fact determined to use Paris Green, and we gave the trees a most thorough spraying. After the spraying, I thought, more than before it, they seemed in almost every case to move and attack a new part of the leaf, and wherever they did so they seemed to have just commenced operations and died, for they scarcely made a mark on the leaf. They are mostly gone, yet there are thousands fast to the leaves, but they are dead. They attacked about 1,000 Duchess of Oldenburgh trees, and had they continued a few days longer I believe they would have destroyed the foliage and crop. They are most voracious feeders."

Dr. Young sent me frequent consignments of these larvæ, and although many were dead in the cases, at the same time there were a great many that had formed the chrysalis, and from most of these the moths emerged later. Dr. Young also very kindly took much pains to advise me regularly how the insects were developing. He writes October 3: "I find the young worms are, as you anticipated, on the under-side of the leaves. There is one or more on almost every leaf, sometimes only on every 5th or 10th leaf, but pretty plentiful. They are also in the forks of the branches as well as on the leaves."

This last mentioned habit must, I think, be the usual method of passing the winter; none could be found on the fallen leaves 18th November. Upon several lots of twigs sent me at different times during the winter I find the young larvæ in thousands. Being anxious to find out whether they might not be treated during the winter in a wholesale manner, I asked Dr. Young to spray some trees with Kerosene Emulsion. This he kindly did in a thorough manner, and then sent me the twigs about a fortnight afterwards. On 14th December he writes: "I now send you a package of the young caterpillars. The trees off which they were taken were sprayed 25th November; a light shower came that night, so I sprayed again 2nd December with Kerosene Emulsion. If you still wish to have the emulsion used warm, I shall be pleased to try it. In every alternate row of trees (among the Duchess) I have Golden Russets of the same age (17 years). The Russets had very few apples on them, so we did not spray them with Paris Green last season, and I am now satisfied that the caterpillars are many times more numerous on the Russets than on the Duchess of Oldenburghs. I think the Paris Green spraying last summer killed the greater proportion of those on the Duchess and that the dead ones must have fallen from the leaves, for they seemed so much less in numbers afterwards."

They were again sprayed later, as here recorded: "8th February, 1892.—I again send you some of the case-bearers in one package containing two small boxes. The flat box contains those sprayed with very warm Kerosene Emulsion. Those in the

top of the round box, above the division, are sprayed with cool emulsion, and those in the bottom of the round box were not sprayed. The reason that I enclose the last is that we have had some very cold weather, 30° below zero, and I hoped it had injured the worms. The trees that were sprayed were done 19 days ago, but there was ice on the trees and I could not very well collect them before."

The cold had in no way, however, inconvenienced these hardy little enemies of the orchard. Upon receipt of the sprayed twigs they were found to be covered with the small case-bearers. The odour of the emulsion was quite strong, but most of the larvæ were still alive. My thanks are particularly due to Dr. Young for the very careful manner in which he has tried every experiment I have suggested and has at great trouble written the full accounts of the progress of the work. Upon enquiring from him when these caterpillars first appeared, he says: "We did not notice the case-bearers last spring till they had done great injury to the leaves. The apples on the Duchess trees were then about the size of pease, and the trees heavily loaded; my brother then came and told me that the leaves were badly eaten. We examined and found the case-bearers. My brother, whose time is occupied in the orchard, says that he has seen them for six or seven years, but not so many of them. Speaking safely, I think they caused a loss of one-half of the crop, for this was the best bearing year, and we had only 458 barrels, whereas we have had from 800 to over 1,000 barrels off the same trees. Besides this, the apples were not at all as good as formerly."

I received also specimens of this same insect in July from Rev. F. J. H. Axford, of Port Williams, Nova Scotia, where it had occurred in small numbers. It has however, as far as I can learn, nowhere else occurred in the devastating numbers recorded by Dr. Young.

From the above experience, spraying with Paris Green, 1 lb. to 200 gallons of water, directly the leaves begin to unfold, and again after the flowers have fallen, would probably be the best remedy. I bred a few chalcid parasites from the cases; but unfortunately they have been mislaid.

THE PEAR-LEAF BLISTER.

(*Phytoptus pyri*.=*Typhlodromus pyri*, of Sheuten.)



Fig. 5.—Cluster of infested leaves: *a*, upper surface of leaf; *b*, lower surface; *c*, two galls enlarged. (Figure kindly lent by Prof J. H. Comstock.)

Attack.—Reddish spots, irregular in shape, about $\frac{1}{8}$ inch in diameter and frequently confluent. These appear on young pear trees early in spring, and as the

summer progresses they turn to corky blister-like galls, with a hole in the centre, through which large numbers of minute mites issue and attack fresh parts of the leaf.

I am not aware that this injury to pear trees has ever as yet been recorded in Canada; but I find that it is very widespread and serious. Four years ago I received specimens from River John, Nova Scotia, and during the past summer it has come in from several different localities. It is a European insect, and has doubtless been imported with pear trees.

"May 28, 1889.—The enclosed pear leaves were gathered off a pear tree in the garden. I noticed the young pear trees had their leaves flagging, and upon enquiry was told that it was a blight, and no one knows it nor how to cure it. Is this the case?"

"October 15, 1891.—I send you some more of the pear leaves. They are not nearly so much diseased this year as usual."—Mrs. W. G. SCHREIBER, *Springfield-on-Credit, Ont.*

"June 22.—I mail to your address some infested pear leaves. The disease is different to our common enemy *Fusicladium*. This trouble has been quite common in our pear orchards and spreads rapidly under favourable circumstances."

"July 13.—Enclosed I send some more diseased pear leaves, as requested. This trouble on the pear leaves, not directly injuring the fruit, we have given it but a casual passing notice. But every year it is growing worse, and on many of the trees this year the foliage is so impaired that the vigour and health of the trees are very much injured."—J. K. MACMICHAEL, *Waterford, Ont.*

"July 14.—I send pear leaves attacked, I suppose, by insect or fungous disease."—Rev. F. J. H. AXFORD, *Cornwallis, N. S.*

"August 24.—Some kind of blight has been affecting the pear trees in my orchard for the past two or three years. I enclose some leaves, and should be much obliged if you could inform me of the cause of the appearance of these leaves, and also if there is any remedy. A good many of the trees are dying off, and I cannot attribute this to any other cause than the blight."—CHAS. A. HOLMES, *Richmond Hill, Ont.*

"September 8.—I enclose you some diseased pear leaves sent to me from near London. Would you be kind enough to tell me what the trouble is with them. I have seen the same before, and understand the insect to be a very small mite."—L. WOOLVERTON, *Grimsby, Ont.*

This injurious disease, which has spread unnoticed over the Dominion and much of the United States, has not been treated of by many of our North American entomologists, although the mite was figured by Glover (U. S. Agric. Rep. 1872) and mentioned by Riley (Am. Ent. III, p. 26), and Osborn (Ag. Col. Iowa, Bul. 2, 1884). Prof. J. H. Comstock, in Cornell University Bulletin XXIII, December, 1890, gives a full and well illustrated account of this pest, and in the Handbook of Destructive Insects of Victoria (Australia), by C. French, F.L.S., F.R.H.S., the Government entomologist, is also another good account, illustrated by a coloured plate, giving its history in the Australian colonies.



Fig. 6.—Adult mite.
(Kindly lent by Prof. J. H. Comstock.)

The cause of this disease, which, until it is examined, is as a rule attributed to the attacks of some fungous parasite, is a very minute insect belonging to the gall mites, *Phytoptidae*. It is a very small insect indeed, with an elongated body, shown very much enlarged at Fig. 6; it is so exceedingly small, .12 mm., that it requires to be examined under a microscope. The life history as sketched by Prof. Comstock is as follows:—

"Life history of the Species.—The eggs are laid by the females within the galls that they have formed and here the young are hatched. How long the young remain within the gall of their parent has not been ascertained; but sooner or later they escape through the opening in it, and seeking a healthy part of the leaf work

their way into the tissue, thus starting a new gall. By this spreading of the young from the galls in which they have hatched and starting new ones, the number of galls on a tree may become rapidly multiplied. The mites live within the galls till the drying of the leaves in the autumn; then they migrate to the leaf buds at the ends of the twigs, where, after working their way beneath the leafy scales, they remain throughout the winter."

No satisfactory remedy has as yet been hit upon for this pest. Prof. Comstock's experiments showed that Kerosene Emulsion sprayed on the leaves was not satisfactory, and all that can at present be suggested is spraying freely with Kerosene Emulsion at the time the buds burst in spring. It is difficult to mix any powder with Kerosene Emulsion, but this can be done with care, and Flowers of Sulphur would certainly be a valuable addition on account of its special efficacy in destroying mites.

THE CLOVER ROOT-BORER.

(*Hylesinus trifolii*, Müller).

Attack.—Small, brown beetles, shown magnified in the figure, which bore into the roots of clover and deposit eggs there; these eventually turn to white grubs and destroy the root of the clover plant.



Fig. 7.

This troublesome insect is now well known in some of the States of the Union; but has never, to my knowledge, been before this year found in Canada. In August last I received from the editor of the *Farmers' Advocate* the following letter, to which I replied as below:—

"SIR,—I send you by parcel-post specimens of red clover roots infected by insects, and black knot taken from cherry trees, with the worms still in them. There are two broods of the clover insect in a season, the first becoming a beetle and leaving the clover roots about the first of July, and the other about the time the red blossoms should develop for the second crop; but if the insects are numerous, there are no red blossoms, and I think they may have been the cause of the almost total failure of the crop of clover seed in this section for a number of years.* As to black knot, I am satisfied that it is caused by insects, and that the fungus exists only in the cranium of those so-called professors who argue otherwise. If they examine the knots the fore part of July they will find from one to ten maggots in each, without any openings to get in. There are openings now, as they are about to leave the knots, which dry up and make no further growth, and the insects do no more harm.

If the knots are not destroyed before the insect escapes, it is useless to do so after."

—(S. A. ARNOLD, *Harwich Township, Ont.*)

"SIR,—I now send you a short article on the beetle which was destroying Mr. S. A. Arnold's clover. Mr. Arnold's opinion concerning the nature and origin of black knot of the plum and cherry is entirely wrong. The nature and mode of growth of this parasitic fungus are now just as well known as that of the plum tree upon which it grows, and it has been ably treated in your pages by Prof. Panton. It is a rather new kind of argument that because an insect is found inside an object that, therefore, it made it. In the same line would be trying to prove that because maggots are found inside the ordinary mushroom that, therefore, they made the mushroom. There are no holes showing on the outside, because, when the insects hatched from the eggs laid by the mother insect, they were so very small that the hole necessary to allow them to enter the substance of the fungus could hardly be seen, and also because its increase of growth would soon obliterate the holes. (The eggs might also have been inserted in the substance of the gall by the female insect.)

*NOTE.—It is very evident that the gentleman is here confounding two insects—the Clover-seed Midge and the Clover Root-borer.

"The Clover-root Borer (*Hylesinus trifolii*, Müller).—The clover roots sent by Mr. Arnold were found to be badly infested by the Clover-root Borer, which was present in the grub, chrysalis and perfect states. The perfect beetle is a very small dark brown beetle, only $\frac{1}{12}$ of an inch in length. It belongs to the family known as Bark-borers or *Scolytidae*, all of which are rather slow-moving and small insects: most of the species in this family live in and beneath the bark of trees, where they do much damage. The insect under consideration is a new pest in Canada, originally imported from Europe; it has only been complained of in North America since 1878, when specimens were sent to the United States Entomologist, Prof. Riley, from the State of New York. It has, however, already spread over a considerable area, and is now a formidable enemy of the clover grower. In order that the insect may be recognized by farmers, I give herewith an illustration of the insect in all its stages, which has been drawn with great care by Prof. Riley. All the figures of the insect are much enlarged, the actual size being only about that of the letter "a" by the side of the stem. (Fig. 7.) The life-history is as follows: Early in the spring the mature beetles emerge from the ground, where they have passed the winter in the roots of the clover plants, which they had destroyed the previous season. After pairing the female bores a cavity in the crown of the root and deposits there about half a dozen small white eggs. These hatch in about a week and eat their way down into the root, hollowing it out, as shown in the figure. The burrows are filled up with the excrement of the small white grubs (Fig. b.), which, when full grown, are only about $\frac{1}{10}$ inch in length. These change to chrysalides, and in September the perfect beetles may be found in the roots. In the specimen sent by Mr. Arnold I found full grown grubs, chrysalides, and the perfect beetles.

"These would all have attained the perfect form before winter, and remained in the root until spring, feeding upon its substance. Although the perfect beetle feeds on the roots, it is in the grub state that the chief injury is done. When the larger roots are particularly attacked, Prof. Riley found that in many cases the plants were entirely cut off at the surface of the ground, and the flower stalks were in many cases eaten into.

"*Remedy*.—No better remedy has been suggested than the ploughing under of clover when it is found to be infested. As a rule, this is not detected until the second crop is found to fail. In infested districts the fields should be examined frequently, and if indications of the pest are found, the clover should be ploughed under as soon after the first cutting as there is a pretty good growth on the ground. The value of the clover plant as a fertilizer is well known, so that the loss to a farmer is materially reduced on that account, when this treatment is found necessary. When Gas-lime can be had cheaply and conveniently it will render the treatment much more thorough if a heavy application of from two to four tons to the acre be made previous to the ploughing."

AN OAT WEEVIL.

(*Macrops porcellus*, Say.)

Attack.—A white, legless maggot, burrowing in the bases of the stems of oats, leaving the plant when full grown and penetrating into the ground a short distance to pupate, emerging three weeks later as a small brown weevil with mottled wing covers.

In walking through an oat field on 10th July I noticed that several of the stems had a faded and yellow central leaf, an attack similar to that of *Meromyza Americana* upon many grasses. This latter insect is reported by Prof. Cook as injuring oats severely in the State of Michigan, so I was very curious to see if I had at last found it here, where, although it is a very active enemy of grasses, barley, wheat and rye, I had never found it in oats. Upon taking up some of these stems I was much interested in finding an attack quite unknown to me. The base of the stem had been entirely eaten out by a footless, yellowish-white grub, $\frac{1}{2}$ inch in length, with a chestnut-brown head and the posterior end of the body becoming rapidly smaller at the last two

rings. On taking the grub from the oat stem it progressed quickly across a table, working itself along by moving the rings of its body like a dipterous larva and at the same time making use of its slightly extensile tail to push itself along. The next day the same larvæ were found in the stems of *Panicum Crus-galli*, a very succulent grass. When full grown the larvæ left their food plants, and burying themselves in the soil formed oval chambers and changed to small beetles, which were afterwards identified for me by Mr. A. E. Schwarz, of Washington, and also by Dr. John Hamilton, of Allegheny, Pa.

This, I should judge, is not likely ever to develop into a serious pest of oats. It decidedly showed greater preference for the wild grass, *P. Crus-galli*.

RED TURNIP-BEETLE.

(*Entomoscelis adonidis*, Fab.)

Attack.—A showy scarlet beetle, with three black stripes down its back, a black patch on the collar and black legs. Two-thirds the size of the Colorado Potato Beetle, but narrower in outline. Eating the leaves of turnips, radishes and cabbages.

In August, 1885, I found upon the farm of Messrs. Cowdry Bros., at Regina, North-West Territories, sufficient specimens of this beetle to convince me that at any time it might develop into a troublesome pest. As then noted, this beetle also occurs in Europe, and I can see no difference between our specimens and some in my collection from Austria. It has every appearance of being a native insect. Since 1885 I have received no complaints of this beetle; but the following extracts will show that it can develop into a serious crop pest. From corresponding with the settlers through the district I judge that the injury is done by the adult beetle only. I have been unable to learn as yet its life history.

"July 20.—I enclose you some beetles and wish to ask if they are of a harmful kind. At present I only find them on turnips and cabbages, but they may spread further."—G. D. FITZGERALD, *Grenfell, N.-W.T.*

"August 8.—I send you by mail specimens of a beetle that has for about three weeks been feeding on the leaves of radishes; they are so numerous as to have half stripped the leaves from all the radishes and have cleared some to the stalk; we have noticed some feeding on the turnip-tops, but not to do any noticeable harm. Are they likely to give much trouble, and if so, how shall we destroy them?"—J. A. SMITH, *Saskatoon, N.-W.T.*

"August 10.—Please inform me what the enclosed insects are. I picked them off my turnips, which they have eaten the leaves off bare, only leaving the large ribs. I have noticed that such turnips as have been stripped have ceased growing."—ISAAC JONES, *Pheasant Forks, N.-W.T.*

"August 11.—I am sending you some beetles somewhat like lady-bugs, found on our turnips. They are doing considerable damage to the Sweet German turnips and a little to the other white turnips, but do not touch Swedes. I propose trying Paris Green in water."—S. A. BEDFORD, *Brandon, Man.*

"August 12.—I send you herewith some red insects, of which we have thousands on our turnips. Kindly give me some account of them."—Rev. F. R. HOLE, *Halse, Minnedosa, Man.*

Upon enquiring later whether the beetle had bred upon the turnip leaves, Mr. Hole wrote:—"The beetles appeared in July in full force on our turnips; they ate through the leaves a good deal, but the roots did not seem to suffer much. I did not notice any soft-bodied grubs such as you describe."

"Yours received; would say the beetle you speak of did not breed or lay eggs on the leaves, as far as I could see; saw only the beetles."—WM. H. WESTON, *Lorlie, Man.*

"Although hundreds of the beetles were working on the radishes and a few on turnips near by, I believe none of them bred. I have also enquired of a neighbour who had them in the garden, and find that they did not breed there either."—JOSEPH A. SMITH, *Saskatoon, N.-W.T.*

"The Red and Black Beetle in all its habits, except as to food, seemed to me so like the Colorado beetle that I had mentally been calling it *Doryphora rubra-trilineata*. The prevailing colour is red; there are three heavy black lines along the wing covers, the middle lines being made up one-half from each wing cover. It feeds on leaves of turnips and radishes, and where it can get a choice it prefers the latter, sometimes covering a radish plot in swarms. I have picked over 500 from a space five yards long, off a single row of radishes, and in two days they were almost as plentiful as ever. They also prefer the rough-leaved to the smooth-leaved turnips. Ruta-bagas or Swedes are very little meddled with if white turnips or others with rough leaves are growing alongside. I discovered no natural enemies. I watched carefully, as far as time would allow, for the eggs or larvæ of the beetle on the leaves of the radishes and turnips which were its favourite food, but in no instance found either. Some of the radishes if neglected for a day or two would be completely stripped. Some of the female beetles were very big, so big that I expected eggs, and not finding any I thought they must have been deposited in the ground. I know the beetles burrow; but cannot say where the eggs are deposited."—THOS. COPLAND, *Saskatoon, N.-W.T.*

This insect should be watched carefully by north-western farmers, and on their appearance in July the infested crops should be at once sprinkled with Paris Green, in the proportion of 1 pound to 100 gallons of water. I shall be obliged if some of my correspondents will next July send me specimens alive, so that the life-history may be worked out. They may be easily sent by putting one or two pairs into a small tin box with some turnip leaves. These latter should be allowed to fade a little before putting in the box or they will rapidly decay. The boxes for sending insects by mail must not have any holes punched in them, or the food plants and insects will soon dry up and perish.

THE PEA WEEVIL.

(*Bruchus pisi*, L.)

A small, brownish-grey, very active beetle, $\frac{1}{8}$ inch long, with two conspicuous black spots on the end of the body, which emerges from seed pease in autumn or in spring, leaving a small round hole. The egg is laid on the young pod and the grub eats its way into the pea, where it passes all its stages, emerging the same autumn or the following spring.

Reports from the pea-growing districts early in the season were to the effect that there was far less of the Pea Weevil than last year. Lately, however, I find this to have been a mistake, and a report from Prince Edward county, one of the best pea-seed growing districts in Canada,



Fig. 8.

says: "I am very sorry to report that they are greatly on the increase. Lots coming from the central parts of the county are usually worse than those from the outskirts or from near the water. In some lots grown near the lake there is scarcely a weevil to be found. Certain varieties of peas are more infested than others, as the White-eyed Marrowfats, Forty-folds, and Golden-vines. The Early Kents had some, but the Runner peas have scarcely any. In the line of Runners, Black-eyes, and Golden-vines, farmers raise and keep most of their own seed."—T. G. RAYNOR, *Rose Hall, Ont.*

There was considerable excitement caused in Renfrew county, Ont., last spring, by the introduction of a large quantity of seed-pease, amongst which there were found to be some living weevils. A correspondent, who does not wish his name mentioned, wrote as follows:—"I herewith enclose you samples of pease containing some kind of a bug or grub, and would like to have you identify it. About 3,000 bushels of these pease have been imported from the United States, to be grown here,

and a great many are afraid to sow them on account of this bug. In a great many cases the bug is dead, but in others it is not. What would you advise us to do? Is the bug a dangerous one? Would it be better for no one to sow the pease for fear of introducing the insect into the country. I send you by mail a sample of the pease just as they are in the bag, also a sample of those destroyed by the weevil. This seed has been imported by one of our leading seedsmen, and it would be a benefit to every one if the experiment could succeed. The owner supplies the seed and the growers return it to him in the fall, and he gives them 75c., \$1, or \$1.25 a bushel for the rest, according to the variety. They are to be hand-picked, and it is said it will keep between forty or fifty women busy all the winter. So you see, if they do well it will be a good thing all round, for the farmers, the village, the seed-dealer who introduced the seed, and the United States owner of the seed. I would suggest your writing a letter for the local paper regarding this pest. Possibly it may not live in this climate, as a great many of them are dead. I found a few alive, which I sent you, and one of my neighbours says he saw them as soon as they got to the heat come right out and fly away."

In response to this suggestion I prepared the following letter, and sent it off to the *Renfrew Mercury*, and it was printed on 8th May last:—

"WEEVILLY PEASE.

"To the Editor of the Renfrew Mercury:

"DEAR SIR,—I have received two letters from your district enclosing samples of seed pease infested by the Pea Weevil, and asking if it would be safe to sow these for seed. I am also informed that a considerable quantity of similar seed has been sent to your district to be grown for seed during the coming season. I write at once to warn farmers that unless seed is treated before sowing, it will be a very dangerous experiment to introduce this insect into your district. Although it is possible that the weevil may not survive your severe winters in Renfrew county, it must be remembered that this is the worst enemy known of the pea crop, and if the weevils are introduced into your fields with seed sown this spring, the crop grown this year will almost certainly be badly attacked.

"The following is a brief sketch of the life-history of this pest: The egg is laid by the female beetle on the young green pod. As soon as the grub from this hatches, it eats its way in through the pod into the nearest pea, where it remains until full-grown, consuming the interior of the pea and passing through all its stages, from a white fleshy grub to the chrysalis, and then to the perfect insect. Some of the beetles escape from the pease in the autumn and pass the winter hidden away under rubbish or about barns or sheds. The greater number, however, emerge from the pease the following spring, and as soon as the pease are in flower fly to the fields and lay their eggs on the forming pods.

"I have been asked if anything can be done to kill the weevils before the seed is sown. Under the circumstances, I would advise the following remedy: Half fill a barrel or large wash-tub with hot water, not actually boiling, but hotter than can be borne by the bare hand. Pour the pease directly into the hot water, which will instantly kill all the weevils that may have emerged from the pease. Then fill up at once with cold water, which should be standing ready close at hand. The seed should be left in soak, entirely covered with water, for 12 hours, when all the beetles in the pease will be killed. If the seed is to be sown by hand this may be done at once, after pouring off the water, and its growth will be much hastened by the soaking; but if it is to be drilled, it must be dried again or the drill set to allow the swollen pease to pass through freely. To dry the seed after soaking, spread it out thinly on a barn floor or on a large canvas or cloth out of doors, so that it dries up quickly."

The publication of this letter very soon brought in other letters and several samples of pease. From these latter I found that very nearly all the weevils were dead, and upon enquiry from the seed-dealer and shipper I found that the whole stock had been treated in the usual way with bi-sulphide of carbon before shipping.

This being the case, I felt justified in writing again to the Renfrew *Mercury* stating that this was the case.

That there were living weevils even only in small numbers, however, made care on the part of the farmers, as advised above, very necessary.

There are some fallacies current about weevilly pease which it may be well to refute:

1. *Weevilly Pease Floating*.—It is frequently stated that weevilled pease can be detected by throwing the seed into water, when they will float on the top. This is not the case, as everyone can prove for themselves.

2. *Warm Storage Remedy*.—It is also often advised that seed-pease should be stored in a warm room all the winter, so that the weevils may emerge during the winter and die. During the past season I have proved that this remedy is useless. I placed samples of about a quart each in glass jars in my office in January, 1891. They were kept in the heated office and examined frequently. Weevils continued emerging until well into June, long after the seed would have been sown in the field. This, then, makes the remedy of holding over seed until the next year the only reliable, simple remedy. I have found that seed pease may be safely held over for this length of time without losing their vitality. Two-year-old Black-eyed Marrow-fats gave in two samples, respectively, 100 and 97 per cent of strong plants. Golden-vines of same age gave 97 per cent, Multipliers gave 99 per cent.

3. *Weevilly Pease as Seed*.—The statement is often made that pease which have been infested by Pea Weevil are almost as good for seed as sound grain. To test this (i.) One hundred injured pease were picked out indiscriminately and sown in the open ground in June. Of these 17 grew and appeared above ground, 2 made strong-looking plants and produced seed; all the others were stunted and weak. (ii.) One hundred were selected which had the radicle injured by the weevil in boring its way out of the grain. None of these grew. (iii.) One hundred were selected which had the hole away from the radicle. Sixty-two of these grew, but the plants were plainly weaker than others grown from sound seed alongside of them.

Two measured pints of a sample of pease grown in 1891 were carefully tested with the following result:—No. 1 gave 717 uninjured seed, 413 injured (none of which grew), and 64 injured seed which germinated. No. 2, 613 uninjured, 479 injured (none of which grew), and 49 injured, which germinated.

Two samples of two-year-old Golden-vine pease which had been injured by weevils, on being tested in the conservatory gave 9 per cent of sprouted grain in the seed tester and 8 per cent in the soil.

These tests then show plainly that weevilly pease do not answer for seed.

I have as yet never succeeded in breeding any parasite from the pea-weevil.

DIVISION OF BOTANY.

SMUT IN SMALL GRAIN.

The great damage by Smut to the immense wheat crop of the Dominion during the year 1891 has caused much enquiry from farmers. The Department of Agriculture for Manitoba has just issued a timely bulletin upon the subject. In a letter from Mr. A. Mackay, Superintendent of the Experimental Farm at Indian Head, he says: "I think too much cannot be known regarding Smut, and anything you could put in our papers cannot but be of value to the farmers. I think every bushel of seed will this spring be treated for Smut, and it is important that the best way should be known how to treat it effectually." In compliance with the above suggestion, I immediately wrote the following letter to the *Farmer's Advocate*, which has a large circulation in the North-West Territories and Manitoba.

There are two kinds of Smut which attack wheat. These are shown at Fig. 9, which is the Loose Smut of wheat, and Fig. 10, which shows a smutted grain of wheat attacked by the Hard Smut of wheat, also known as "Bunt" or "Stinking Smut."



Fig. 9.

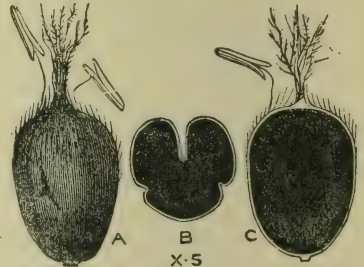


Fig. 10.

"CENTRAL EXPERIMENTAL FARM,

"OTTAWA, 19th March, 1892.

"To the Editor, *Farmer's Advocate*.

"DEAR SIR,—The constant enquiries which come to me from farmers as to the best way to treat grain for Smut make it advisable to draw attention, through your columns, so widely read, to a well-known but effectual remedy. By the time your next issue appears farmers will be preparing to sow their seed-grain. During the past season wheat, barley and oats in many parts of Canada were seriously attacked by the fungous diseases known under the general head of 'Smut.' These diseases are all due to the attacks of parasitic plants, and are propagated by means of the minute grains of black powder of which the Smut consists. These small grains, which are the fructification of the Smut plant, are called spores, and are bodies analogous to the seeds of more highly-organized plants. The diseases are transmitted by means of these spores or 'seeds,' which adhere to the grain and are sown with it. They then begin to grow, penetrate the tissues of the growing plant and in time destroy the seed. The above being the case, and the crop grown in 1891 having been badly infested by these enemies, there is every probability that the crop of 1892 will also be largely destroyed unless means are adopted to prevent it.

"There are several kinds of Smuts, and botanists recognize those which attack the various small grains as different species. For practical purposes, however, they may be considered by farmers as identical, because they all can be overcome by the same remedy. There are many remedies recommended, and for this reason many farmers do not try any. I advise the following, which I believe from all considerations to be the best:

"(1.) Dissolve 1 lb. of Blue-stone (copper sulphate) in 20 gallons of water; soak and stir the grain well in it and leave to soak for 12 hours; then soak in lime water (lime slaked in ten times its weight of water) for 10 minutes.

"(2.) Dissolve Blue-stone (copper sulphate) at the rate of 1 lb. to 2 gallons of water; place this in some large receptacle and pour in grain until it almost reaches to the surface of the liquid; stir well and skim all 'smut-balls' and rubbish from the top. Leave the grain to soak for a quarter of an hour; then pour off the liquid and spread the grain out thinly to dry, and sift dry lime over it.

Should the above be inconvenient, the following may be used:—

"(3.) One pound of Sulphate of Copper is dissolved in a pailful of hot water, which is then sprinkled by one person over 10 bushels of wheat placed in a waggon-box, whilst someone else keeps the grain well stirred. Should a large amount of Smut be detected in grain required for seed, the solution is made stronger, double the quantity of Blue-stone being used." (C. E. F. Bulletin 3, 1888, p. 14.)

"To your own readers I would recommend them to refer to your number for January, 1891, where the subject is treated fully by Prof. Panton. It was also exhaustively treated in Central Experimental Farm Bulletin No. 3, 1888, Bulletin 56, Ontario Department of Agriculture, and Bulletin 32, Manitoba Department of Agriculture.

"There is no question as to the efficacy of the Copper sulphate treatment, and the small percentage of injury to the vitality of the grain is not worth considering when compared with the crop of good, clean grain reaped.

"Wheat, oats and barley may be treated in the same way, but oats should be submerged, not sprinkled only.

"Prof. Kellerman, one of the highest authorities on this continent, says (Bulletin 12, 1890, Kansas Agricultural College, p. 30): 'Since the early part of this century, the almost universal method of preventing Smut has been to soak the seed before planting in a solution of blue vitriol (sulphate of copper). Of the many forms of the treatment in use, perhaps the best is to immerse the seed twelve to fifteen hours in a one-half per cent solution of sulphate of copper (that is 1 lb. in 20 gallons of water), and then put the seed for five or ten minutes in lime water made by slaking lime in ten times its weight of water. This, if properly carried out, will prevent the smut, with but little injury to the crop.'

"Cooke & Berkley, the highest English authorities, say: 'Since dressing the seed-wheat has been so widely adopted in this country, this has been of comparatively little trouble.'

"The above remedies have been tried, and have certainly given good results.

"Messrs. Kellerman & Swingle, who have been investigating this matter of Smuts for several years, and whose conclusions are, therefore, of much weight, have found that, on the whole, and particularly with oats and barley, the 'Jensen hot-water treatment' is the best. This consists of submerging the grain for from five to fifteen minutes in water kept at a temperature of $132\frac{1}{2}$ degrees. I have not yet tried this remedy, so cannot speak of it; but I should judge that there would be difficulties, for farmers without special apparatus, in the way of maintaining the water at the proper temperature. Mr. A. Mackay expresses the opinion that there would be 'no use in recommending this treatment for the North-West Territories; water is scarce and farmers would not take the trouble.'

GRASSES.

The experiments in grasses have been continued, and the grass plots have attracted a great deal of attention from visiting farmers.

The trial plots of one square rod each have been extended, and a larger number of species have been cultivated than was the case last year. Donations of grass seeds have been received from the following:—

Prof. Macoun, Government Botanist, Ottawa.

Prof. S. M. Tracy, Agricultural College, Mississippi.

Prof. Waldron, Agricultural College, North Dakota.
 Mysore Government Botanical Garden, Bangalore, India.
 H. L. de Vilmorin, Paris, France.
 K. McIver, Roselea Farm, Virden, Man.
 A. H. Craven, Duck's Station, B.C.

Herbarium specimens and valuable assistance in the identification of species have been received from Dr. George Vasey, United States Botanist, Washington; Prof. J. Lamson-Scribner, Director Agricultural Experimental Station, Knoxville, Tenn.

Last spring 2,519 packets of grass seeds, made up into 135 collections, were distributed for testing in the different parts of the Dominion. The varieties sent included the best European and native agricultural grasses. Very few reports have been received up to the present; but it is probable that, owing to the fact that it was rather late in the season when the seed was sent out, many of the varieties which did not germinate last season will come up this spring, and others which made some growth will do far better during the coming season.

Some of the statements made in my report for 1890 I find from the results obtained last season require modification or some further notes.

NATIVE GRASSES.



Fig. 11.



Fig. 12.

Bromus Pumpellianus, Scrib. (Western Brome Grass), Fig. 11. This is a good grass, very much resembling Austrian Brome Grass (*B. inermis*). On 1st May it was 1 foot high and of good appearance; speared 30th May; flowered 15th June; seed ripe, and 3 feet high, 16th July; much earlier than last year.

Deyeuxia Langsdorffii, Kunth. (Northern Blue-Joint). The second year of the plot. The whole bed divided and filled up 21st May; speared 30th May; flowered 15th June, 27 inches high; aftermath 10 to 15 inches high on 5th September. A fine soft grass, which makes excellent hay.

Deyeuxia Canadensis, Beauv. (Blue-Joint), Fig. 12. This is a fine grass of high quality and free growth. It grows in very wet land, sometimes to a height of 6 feet, and makes excellent hay.



Fig. 13.



Fig. 14.



Fig. 15.

Hierochloa borealis, R. & S. (Holy Grass, Indian Hay), Fig. 13. Mr. Bedford points out, what is undoubtedly quite true, that in land required for farm crops this grass in Manitoba will probably be more trouble to eradicate than will justify farmers in sowing it, except in land that can be left indefinitely in grass.

Muehlenbergia glomerata, Trin. (Wild Timothy). This grass is still a great favourite with all who have grown it. Mr. S. A. Bedford speaks of it in the highest terms of praise. Seed sown in the spring will yield a crop of good hay by August. At Fig. 14 is shown a flowering spike, and at Fig. 15 is a cut showing the whole plant.

Muehlenbergia sylvatica, T. & G. (Bearded Satin Grass). Seed from single plant collected at Ottawa. Sown 28th October, 1890; came up 21st May, 1891; transplanted 6th July; speared 13th August. On 5th September 20 to 24 inches high. This has the appearance of being a valuable grass. It kept green right up to hard frost. The bed is not yet filled, so that no weight could be taken.

Phalaris arundinacea, L. (Reed Canary Grass), Fig. 16. The plot was cut three times in 1890—4th June, 5th August and 16th October. Last season it did not make a good growth; this, however, may have been due to the drought early in the season.

A new bed of the variegated form made a most luxuriant growth; but is not so tall as the type.



Fig. 16.



Fig. 17.

Poa compressa, L. (Canada Blue Grass), Fig. 17. This grass is also known as "Wire Grass." Half of this bed was planted from roots collected wild; the other half from seeds sold wrongly named by one of our seedsmen as *Poa nemoralis*. Both made a vigorous and rich growth. Planted in 1890. A fine succulent growth of young shoots by 30th May; speared 8th June; flowered 24th June; height 18 inches. 7th July height 24 inches, and very even. Half of this bed, cut 5th August, gave 66 lbs. of grass to the square rod. Seed collected from the other half ripe 26th August. The new growth had begun again 5th September. This is rather a small species, somewhat resembling June Grass; but it is easily distinguished by its flat and more numerous stems and their green colour, even when the seed is ripe and has fallen off. It is very hardy, and will thrive in almost any soil, and as it will withstand the effects of drought it is particularly suited for rocky pastures. It flowers about 1st July; the stems remain green a long time, and it makes good hay even when the seeds are ripe; when fed green, our cattle picked it out in preference to all other kinds.

True, June Grass (*Poa pratensis*), which is the same thing exactly as Kentucky Blue Grass, is well shown at Fig. 18. It is not as a rule so highly valued by farmers as it deserves. This, perhaps, may be due to the fact that its chief value is in its leaves, which, although freely produced from early spring till late in the autumn, are not always recognized as belonging to the weak flowering stems recognized by all farmers as June Grass. There are also various forms, some much better agriculturally than others. On the whole, this is the most valuable pasture grass in

the country. All stock relish it. It produces more continuously if kept fed off than any grass I know, and the chemical analysis shows it to be a specially rich food.



Fig 18.



Fig. 19.

Agrostis vulgaris, With. (Red Top), Fig. 20. It might be supposed that all farmers would know what Red Top is; but this is not the case, and I have had more specimens of this grass sent in for name than any one other kind. Anyone who once knows it will not easily forget it again. The name "Red Top" is also given to many grasses to which it does not belong, as Fowl-Meadow Grass (*Poa serotina*), which is never red; when touched with frost it turns purple. Blue-Joint (*Deeyuxia Canadensis*), a tall water or low-land grass, sometimes 6 feet high, and others. True Red Top is an *Agrostis*, a family in which the florets are single at the end of the slender little stalklets in the panicle. In the Meadow Grasses of the genus *Poa*, the flowers are made up of five or six florets as shown in Fig. 17 and 18. Red Top is a very valuable grass for low land, and produces a heavy crop of rich, soft hay.

Agropurum divergens, Nees. (Awned Blue-stem). In my last report I say: "Spoken highly of in the west, but made a poor showing at Ottawa." In discussing this grass with Professor Lamson-Scribner, he writes me as follows: "When in Montana I noted this grass particularly, and can assure you that it stood till fall upon the open ranges. The culms were hard and rigid, and cattle would not eat them so long as there was any other vegetation to be had. In the winter season, when stock is starvation hungry, of course it may serve to keep the animals alive."

Agropyrum tenerum (Western Rye Grass). This valuable hay and fodder grass has been specially tried during the past season, at the request of Mr. K. McIver, of Roselea farm, Virden, Man., who kindly sent me a good supply of seed in April last, with the following letter: "Will you kindly sow a small plot of native Rye-grass I send you herewith, and have it tested along with other varieties

you may be growing. I may state that I have been growing it since 1885, and find it does remarkably well here. I had 3 acres of it last season, which I cut with binder, and which yielded about 50 bushels of seed. I intend to sow 15 acres more of it this spring. If it will compare favourably with other varieties in feeding qualities it must be a boon to this country, as stock are very fond of it, both as pasture and hay. This grass has very fine roots, similar to Perennial Rye-grass, only stronger and a little coarser. In fact, it was its likeness to it that made me gather the seed to test it. This is about the only variety that has given me satisfaction here. Timothy is no use, except for one season, and is hard to germinate. Cocksfoot can hardly stand the winter, and what lives is late in starting. The native Rye-grass (as I call it) is very early, affording a nice bite for stock before there is anything green on the prairie."

"January 16, 1892.—I collected this grass in 1885 while putting up hay in the Assiniboine valley. I noticed some tufts a few feet above the water's edge and observed that it resembled our Scotch Perennial Rye-grass very much, except the head. I felt sure that in a few years we should get no wild hay to cut, so concluded to give this grass a fair trial under cultivation. I gathered as much as half filled a flour bag, cutting half down the stem. From this I had enough to sow a plot of ground 400 yards square, which I sowed in the spring of 1886, on a dry sandy soil. It grew over 1 foot long and seeded, but did not fully mature. 1886 was a very dry summer here, so I felt more than satisfied with my success. In 1887 I got it destroyed by a hail storm. In 1888 I had 3 bushels of roughly-dressed seed, which I sowed in 1889 on 3 acres of wheat stubble-ploughed, mixed soil, sand in one part, clay in another, with a large spot of alkali soil. On this plot I had a magnificent crop in 1890, especially on the clay. The plot yielded about 20 bushels of seed to the acre. This last season I had over 4 tons of hay off same plot, which I did not thresh, having no use for seed. This last spring I sowed 45 acres under it, along with wheat, which did so well that I gave some of it to a party collecting for the Toronto Industrial Exhibition, which was fully 4 feet long. In conclusion, I would say that with the few experiments already made in Manitoba I have no fear of its future, as far as hay and pasture are concerned."

The seed sent by Mr. McIver was sown broadcast on 20th May. On account of the dry spring it did not come up until 23rd June. Copious rains fell on the 10th June. By 30th June the grass was 4 inches high. By 10th July 6 to 8 inches, but uneven. It speared 15th August, flowered 20th August, and the seed was ripe 12th September. The following analysis made by Mr. F. T. Shutt would show that this grass has a good nutritive value. Sample taken 8th July, when the seed was in the milk.

Albuminoids	14·06
Fibre.....	40·15
Ash.....	5·71
Fat.....	·98
	<hr/>
	60·90
Carbo-hydrates.....	39·10
	<hr/>
	100·00

FOREIGN GRASSES.

The following grasses will not repay cultivation in the Ottawa district:—

Sweet Vernal Grass (*Anthoxanthum odoratum*). Part of a bed was planted in May, 1890, and had become well established by the winter. Two-thirds of this part winter-killed and the remaining one-third recovered very late. Flowered 30th May. This grass is apparently useless for this climate. Such plants as are not winter-killed recover so late that their character for earliness is entirely lost. The other half of the bed was planted out during the summer of 1890, and had made nice vigorous

plants by autumn; but every plant was killed by the winter. This was also the experience we had with this grass in 1887 and 1888.

Wood False-Brome Grass (*Brachypodium sylvaticum*). This variety went into the winter of 1890 with a magnificent appearance. Every plant winter-killed.

Crested Dog's-tail (*Cynosurus cristatus*). The same particulars as the last.

Perennial Rye-grass (*Lolium perenne*). do

Italian Rye-grass (*Lolium Italicum*). do

The following have proved themselves perfectly hardy at Ottawa, and they are probably hardy in all the agricultural districts of the Dominion:—

Tall Fescue (*Festuca elatior*).

The Meadow Fescue (*Festuca pratensis*).

Hard Fescue (*Festuca duriuscula*).

Austrian Brome Grass (*Bromus inermis*). Fig. 21. Of all the grasses not in general cultivation which we have tried, this is by far the most promising. The seed germinates readily and the young plants soon become established. It is conspicuous for its free leafy growth and tall stems which bear an abundance of seed. It flowers here in the last week of June and has produced nearly 4 tons of hay to the acre. It is very hardy, early, and a heavy cropper, and produces a heavy aftermath of succulent leafy shoots, one of which is shown with a panicle of seed at Fig. 20. This grass has also been called "Awnless Brome Grass," "Smooth Brome Grass" and "Hungarian Fodder Plant." The use of the last of these, however, should not be encouraged, as already confusion has arisen on account of the similarity of the name with "Hungarian Grass" a kind of millet.



Fig. 20.

although it is looking very well."

NOTE.—The drought of the spring of 1891 affected very seriously the grasses grown upon the experimental plots, as far as comparative records with other years are concerned—so much so, that any fuller details than I have given above would only confuse and give a wrong impression concerning many of the species.

The figures used in illustration of this section of my report Nos. 11—20 have been very kindly lent by the William Weld Co. (Limited), of London, Ont., and are the same as were used in the number of the *Farmer's Advocate* for March, 1892.

WEEDS OF THE FARM.

There has been considerable enquiry for information concerning weeds of the farm, and farmers generally seem to be alive to the necessity of stamping out a new pest as soon as it appears. There are certain principles which must be borne constantly in mind by those who wish to clear their land of noxious weeds. In the present age of great and easy communication with all parts of the globe, there are frequent opportunities for seeds of weeds being introduced into previously unin-

fested districts. This is, as a rule, with other seeds or in hay and straw used as packing. Perhaps the most fertile source of weeds upon a previously clean farm is bought manure. Notwithstanding all efforts to the contrary, weeds will, however, be constantly introduced from outside sources either with seed, manure, or carried by the elements, and it is well that farmers should understand a simple classification of all weeds by their modes of growth.

Plants may be divided into the following classes: annuals, biennials and perennials. In eradicating weeds it is all-important to know under which of these heads they come.

Annuals—Are those plants which complete their whole growth in a year. As a rule, they have small fibrous roots and produce a large quantity of seed. Examples of this class are found in Wild Mustard, Penny Cress (called in Manitoba Stink-weed or French-weed), Lamb's quarters, Wild Buckwheat, Purslane, Ragweed. There are also some annuals which are biennial in habit, that is, of which seeds ripened in the summer produce a certain growth before winter sets in and then complete their development the following spring. Of these may be mentioned Shepherd's Purse, Penny Cress, mentioned above, and Chess.

Biennials—Are those plants which require two seasons to complete their growth, the first being spent in collecting and storing up a supply of nourishment, which is used the second season in producing flowers and seeds. Examples of these are Burdock, Wild Parsnip, Mullein, Evening Primrose and Viper's Bugloss or Blue-weed.

Perennials—Are those plants which continue growing for several years. Perennial weeds are propagated by various methods. The most troublesome are those which extend long shoots beneath the surface of the ground as Sheep's Sorrel, Canada Thistle, Perennial Sow-thistle, Chicory and Couch Grass. Some perennials extend but slowly from the root by means of short stems or offsets; but produce a large quantity of seed. Of these, Ox-eye Daisy, Dandelion, Golden-rod and Perennial Groundsel are examples.

In adopting a method of extermination the nature of the plant to be eradicated must first of all be taken into consideration. Any method by which the germination of the seed in the soil is hastened and then the young plants are destroyed before they produce fresh seed, will clean land infested by annual weeds. The seeds of some annuals have very great vitality, and will continue appearing for several years as fresh seeds are brought to the surface. Wild Mustard and Wild Oats have been known to germinate after lying deep in the ground for twenty years. Biennials must be either ploughed up or cut off previous to flowering. Where ploughing is impracticable they should be cut off below the crown of the root. For this purpose a large chisel in the end of a long handle (to obviate the necessity of stooping) is as convenient a tool as can be used. Perennials are by far the most troublesome of all weeds and require very thorough treatment, and in some instances the cultivation of special crops, to ensure their eradication. Imperfect treatment, such as a single ploughing, frequently does more harm than good, by breaking up the underground stems and stimulating growth.

There is no weed known which cannot be eradicated by constant attention, if only the nature of its growth be understood. Farmers should be constantly on the alert to prevent new weeds from becoming established on their farms. There are some general rules which all should remember:—1. Weeds do great harm by robbing the soil of the plant-food intended for the crop. 2. They crowd out and take the place of more useful plants. 3. They cause great loss of time to eradicate, and frequently compel the farmer to change the best rotation of his crops, and perhaps grow crops which are not the most advantageous for his farm. 4. *Weeds of all kinds can be eradicated* by constant attention along the following lines: (i.) Never allow them to seed; (ii.) Cultivate frequently early in the season, so as to destroy seedlings while of weak growth; (iii.) For perennial weeds, the only means of destroying them is to prevent them from forming leaves and storing up nourishment in their roots. This can be done by constant cultivation. The importance of leaves to plants can be seen by the serious injuries frequently inflicted even upon large forest trees by

the destruction of their leaves by insects. The American larches over thousands of acres in Canada have been destroyed during the last four or five years simply by having most of their leaves eaten by the Imported Larch Saw-fly (*Nematus Erichsonii*). Gooseberry and currant bushes stripped of their leaves during one season by the Currant Worm (*Nematus ribesii*) seldom mature a good crop of fruit the next.

The following are amongst the more important pests of the farmer which have been enquired about during the past season :—

Pepper Grass (*Lepidium intermedium*, Gray.)

Specimens of this plant were sent down by Mr. Bedford from Brandon, where it was not known by farmers, and was causing much alarm from its unusual development and luxuriance. This latter character must, however, have been due to the season, as it is indigenous and very common from the Red River west to the Pacific. It is a slender annual herb, about 12 to 18 inches in height, belonging to the Cress family. It produces an enormous quantity of very small reddish seeds, by far the greater part of the plant consisting of the flowering branches thickly beset with the small, round, flat pods. It grows in the shape of a miniature tree with a central stem and a large spreading head. There are two species of these pepper grasses *L. Virginicum* and the present species *L. intermedium*. They are much alike, but can be at once separated by an examination of the seed. In *L. Virginicum* the seed-leaves of the undeveloped plant, inside the seed, are accumbent—that is, have their edges lying against the radicle, while in *L. intermedium* the seed-leaves are incumbent, or have the radicle lying against the back of one of them.

In July the same weed was sent in by the editor of the *North-West Farmer*, who had received it from Mr. H. Byers, of Portage la Prairie, who had come across it in several places, and in one place “had found about half an acre of a wheat field, where the weed had completely crowded out the wheat.” About the same time there appeared in the newspapers several references to the great abundance of the same plant in Minnesota and North and South Dakota, where, owing to unusually wet weather, it had developed more quickly than the wheat crop and crowded it out. In the *Lake County Leader*, published at Madison, South Dakota, 25th June, 1891, the following appears: “Valley city, North Dakota.—Extended observations and well-authenticated reports from all parts of the country show the alarming condition of the wheat on account of the growth of Pepper Grass, the new weed of the Mustard family, which has appeared this year for the first time. Many fields are already entirely ruined, and thousands of acres of wheat that was most promising, being chiefly on summer fallow, will not be worth harvesting. The damage to date is estimated at from 15 to 25 per cent.” It is probable that this state of things improved as the season progressed; but the above shows the advisability of farmers making every effort to clean this weed out of their land. It is an annual, and produces no running roots; it is easily seen, and can be easily pulled by hand, which will probably be found the best means of eradicating it.

Penny Cress, “Stink-weed,” “French-weed” (*Thlaspi arvense*).

This is considered one of the worst weeds in Manitoba. It belongs to the Cress family, and has great vitality. There are two large successive crops of seed ripened in the summer, and frequently many plants will be found late in the autumn, which pass through the frosts of winter unharmed and ripen their seeds early the next spring. It is an exhaustive weed of a rank, unpleasant odour. It is an annual, and wherever seen should be destroyed. It is very abundant in Manitoba, and is now also found in many other parts of Canada. It can at once be recognized by its small white flowers its large flat pods, frequently over half an inch across, and its pungent odour. Thorough cultivation and hand-pulling will destroy it.

Purslane, "Pusley" (*Portulaca oleracea*.)

The red fleshy leaves and stems of this persistent weed are well known to every gardener. The tiny yellow flowers which appear in July, and are of the same form as those of the lovely garden *Portulaca*, are followed by pods filled with minute black seeds. This is a very difficult plant to kill, owing to its succulent nature. It must be hoed up very lightly and constantly when it first appears. If hoed heavily some of the plants will be covered by the earth, and will soon take root again.

Common Rag-wort, "Stinking Willie" (*Senecio Jacobæa*.)

I have had considerable and very interesting correspondence with the Rev. Father Burke, of Alberton, Prince Edward Island, concerning this plant, which is a perennial groundsel. It has been introduced from Europe into the Maritime Provinces and has been credited with causing a mysterious disease amongst cattle. It is a perennial, but does not seem to spread much from the root. It matures however, many downy seeds, by which it is becoming rapidly disseminated. The following interesting account of this plant appears in the *Prince Edward Island Agriculturist*:—

"For years aback a dirty, yellow weed of rapid growth and extensive fibrous root has been spreading with wonderful rapidity in the western part of the county. As far as can be ascertained, it was accidentally brought to this country from Ireland by an old settler in a bed tick, who took up land near Tignish. From May, till the frost kills out all vegetation, its rank leaves and ugly yellow head, meet the eye everywhere from the place whence it started as far east as Conway station. Every year it makes a stage of many miles, and at this rate before long will waive its unsightly head from one end of our little province to the other. Up to this time it has been known in the west by the name *Baughlan*, which its importer gave it, and which it no doubt was known by in that part of the Emerald Isle whence it came. But now it turns out to be no less a pest than the European Rag-wort, one of the most troublesome weeds the farmers of the other continent have to deal with." Not knowing its name and alarmed at its rapid spread up west, the Rev. Father Burke enclosed a plant (root, leaves, flowers and seeds), to Mr. Fletcher, of the Central Experimental Farm, and has had the following reply:

"Rev. A. E. BURKE, P.P.,

"Alberton, P. E. I.

"MY DEAR SIR,—I am in receipt of your two favours. The yellow weed concerning which you previously wrote is *Senecio Jacobæa*, the 'Common Rag-wort' of Europe, whence it was imported into the Maritime Provinces. It is a common and troublesome weed in many places throughout Nova Scotia and New Brunswick. Principal Mackay, now of Halifax, says that it is supposed to be injurious to cattle, and I know this was a common belief in England years ago; but as a matter of fact I never saw cattle touch it."

In a late issue of the same paper a correspondent, "Farmer John," writes that this plant is well known in Pictou county, and it is stated that the majority of the farmers there believe that to it and it alone are they indebted for what is known as "the Pictou cattle disease." "An investigation, however, was made by some of the leading veterinaries of America, and they concluded that the weed had nothing to do with the disease, and to prove this, cattle were kept on it for some time."

"Nevertheless, I for one—backed up by the opinion of hundreds of others who are interested—cannot help the conviction that it has to do with causing trouble amongst our cows. One thing sure, where there is none of the weed there is no disease, and after the weed has made itself noticeable in a section the cattle disease follows. So if "Billy" should happen by any chance to be innocent he certainly keeps very bad company, and every effort should be made to stamp him out completely, or it will only be a question of time when it will overrun the whole island.

This is no easy task to do, unless every farmer works to keep it down, for one farm can supply seed enough to seed a whole district.

"Sheep eat it and appear to suffer no ill effect from doing so, and it is claimed hereabouts that sheep are the best motor yet discovered to kill out the weed. I have often wondered why our County Council have not taken the matter up; for, as I have said, the weed will overrun the whole county, as it does any section where it gets a hold, unless prompt measures are taken to stamp it out. But my word for it, its destruction is worth a mighty effort."

Father Burke writes: "I notice nothing will eat it here. I have time and again put it in to pigs, which, closed up in pens, usually rush for anything green; but they would not touch the Baughlan."

It is well that all who see this weed should make an effort to destroy it. In old meadows and pastures digging out each plant will be necessary, as it has such a firm hold on the soil that it is almost impossible to pull it up. Rotation of crops and frequent cultivation will of course destroy it in farm lands; but it flourishes by road sides and in waste places. The only way to eradicate it entirely would be for the members of agricultural societies and farmers' institutes to wage a systematic war against it. This should surely be possible.

Perennial Sow-Thistle. (*Sonchus arvensis*).

This is another troublesome plant which is complained of by farmers every year. Specimens were sent in by the editor of the *Stouffville Tribune*, of Stouffville, Ont., who stated that the plant was beginning to seriously affect crops in that vicinity and that farmers had applied to him for information concerning it and the best method of extermination. It is a perennial, with strong underground stems which spread out a long distance from the centre. The leaves cover the ground closely and choke out the crop amongst which it grows. The flowering stems have no leaves towards the top, where there are three or four large yellow flowers which are conspicuously glandular hairy outside and on the foot-stalks. When this plant is established in a piece of land it can be eradicated only by constant cultivation or hoeing.

Burdock (*Lappa officinalis*).

The large rhubarb-like leaves of this plant, and the burrs with their hooked tips which surround the flowers and seeds, are well known to everyone. The Burdock is a biennial, and is easily eradicated by cutting it off below the collar, or by continuous mowing to prevent the plant going to seed.

Wild Chicory, Succory (*Cichorium Intybus*).

The lovely blue flowers of this perennial plant are very conspicuous along roadsides in many parts of Canada. It also is occasionally found in fence corners and around stone heaps. It has strong spreading root-stocks, but is not a difficult plant to overcome by constant hoeing. The large flat, pure blue flowers are borne on stiff leafless stems and open only early in the morning.

Orange Daisy (*Rudbeckia hirta*).

This is one of our most beautiful wild plants. It has now been introduced into most parts of Canada, where it may frequently be seen in clover fields. The flowers are bright orange with a purple centre, and are about the same size as those of the Ox-eye Daisy. The whole plant is very rough and bristly hairy. During the past summer I received specimens from several places, one of which was from Prince Edward Island, where it was described as "not common, but had attracted attention by its great beauty."

Such a conspicuous plant as this is, catches the eye at once, and it should always be pulled up when seen, as it develops a large number of seeds and spreads rapidly.

Ox-eye Daisy (Chrysanthemum Leucanthemum, L.)

Few pests of the farm are better known than this. It is a pernicious weed which has become well established in many parts of the country. This is chiefly in hay-fields and pastures.

To clean these the sod must be turned under and the land put into alternate husbandry. A great deal of good may also be done by digging up all plants found along the sides of farm-roads, etc.

Upon the farm of Mr. S. A. Fisher, of Knowlton, Que., not a plant of this weed can be found, although it occurs all round his farm; and, more than this, a railway passes right through his land. This exemption is entirely due to regularly pulling every plant which shows its flowers. These are not pulled hap-hazard when they happen to be seen, but a systematic search is made for them every year in June.

Canadian Flea-bane (Erigeron Canadense.)

This is an annual weed, which may be readily recognized by its numerous very small greenish white flowers. It is a tall, erect, hairy plant, of a particularly weedy appearance. It is easily destroyed by hand-pulling, hoeing and cultivation.

Canada Thistle (Cnicus arvensis).

The name "Canada Thistle" has now become so well known that it would be useless to try and get it called by its proper name, Field Thistle. It is not a Canadian plant at all but like most of our worst weeds and injurious insects is an importation from Europe. Grindon in his "Botany" says: "Thistles, more than any other class of farm weeds, indicate habitual neglect, yet they accompany cultivation wherever practised by Englishmen and have now become an annoyance in Australia. Many a good old proverb makes use of them. First we have the timely warning: 'He that sows not corn, plants thistles.'"

The Thistle has a creeping perennial root-stock, which penetrates deep into the soil, and which if broken up will produce buds and roots at each joint. It also produces large quantities of seeds in the perfect flowers. There are two kinds of flowers, some smaller and paler than the others which are perfect and produce an abundance of seed. Some others which are twice the size of these have abortive stigmas and produce no seed.

The Canada Thistle is perhaps the most difficult plant to conquer that the farmer has to contend with; but with determined persistence the worst patch may be killed out entirely. The chief effort should be made by frequent hoeing or cultivation to prevent the plant from forming leaves; in this way the roots soon become exhausted and the plant must die. In heavy land, of course, it is more difficult to destroy both Thistles and Couch Grass; but two hoed crops well cultivated will generally be sufficient.

Couch Grass, "Quack," "Twitch," &c. (Agropyrum repens).

This is a perennial grass with a creeping root-stock and possessed of such vitality and vigour of growth that if neglected it very soon takes complete possession of land. The difficulty in eradicating the pest is undoubtedly great, particularly in heavy land; but at the same time it is very much magnified in imagination and I have never met the Canadian farmer yet who could not master it, if he attacked it systematically and observed its nature. Quack grass never sends its root-stocks deep into the soil; therefore in farm land what is called "deep ploughing" rather helps it than otherwise, because it merely breaks up the root-stocks and plants them deeper, and the young shoots soon appear from the bottoms of the furrows, even when the top has been harrowed over and the Quack burnt. In gardens deep digging and trenching bury the weed so deep that it is smothered, and if a few blades do succeed in getting through they are soon hoed off. I have found that

Quack Grass can be destroyed in one season by constant hoeing. This was on light sandy soil. A practice frequently recommended at farmers' institutes is the following, which although I have never tried it would to my mind certainly succeed: Plough lightly about 4 inches deep in autumn, and cross-plough in spring. In June sow with buckwheat and plough this under as green manure as soon as it is in flower; then sow again the same crop and plough it in. Follow the next year with a hoed crop. In the North-West Territories and Manitoba is a western variety of this pest which is called Colorado Blue-stem. (*Agropyrum glaucum* R. & S. var *occidentale* V. & S.) In low land this will doubtless be found troublesome and give the farmer some trouble, but it is also probably the most valuable fodder grass which grows on our western cattle ranches.

Wild Oats (*Avena fatua*).

This is an annual grass and is propagated entirely from seed. The seeds are said to have great vitality, and to lie dormant in the soil for many years if they be buried too deep to germinate. Any method adopted to clean land of this pest must ensure that no seeds are allowed to ripen. Sowing fall rye as a soiling crop, and following with a crop of buckwheat to be ploughed in, and then following the next season with a hoed crop, may be suggested. This plant has been sent to me but very seldom, and it is not found, as far as I know, in this part of Canada. Mr. A. M. Kinnear, of Paris, Ont., wrote to me, however, Sept. 3: "I am interested in a farm in the township of Dunn, county of Haldimand. The farm has but lately come into my hands, and I find it has been allowed to run into a very dirty condition with various kinds of weeds, one of the fields particularly being infested with a plant known in the locality as "wild oats." In October, specimens of the seed were sent to me, and proved to be, as stated, the Wild Oat (*Avena fatua*.) The seed of this weed may be known by its brown husks, bristly at the base and the long twisted arm. When growing, Wild Oats closely resemble cultivated oats, but the panicle is larger and more spreading. The long awn when dry is much twisted, and when damp it uncoils quickly; for this reason, the name Animated Oats has been given to the seed. Sir William Hooker says: "The use of the Wild Oat, with its brown hairy seed and twisted awn, as an artificial fly is well known; the uncoiling of the awn when wetted causing those contortions by which it imitates a fly in trouble. It is of common use with rustic fishermen."

Chess (*Bromus secalinus*.)

I have many letters and enquiries from farmers with regard to the very remarkable but utterly mistaken idea that wheat can by any possibility change to Chess. This is quite impossible and the strange thing to me is that some of these farmers have not proved it for themselves, by trying to produce Chess experimentally from wheat by some of the causes which it is alleged will do so. A. A. Crozier in his charming little book "Errors about Plants" says on this subject: "No popular error has been more generally held in this country than that wheat will turn to Chess; there are signs, however, that interest in the question is dying out, which probably means that the better educated farmers have ceased to believe in the transmutation theory. None of the leading agricultural periodicals now advocate this theory and some of them decline to discuss it any longer. Nevertheless, the subject is by no means out of date." "The causes assigned for the alleged transmutation of wheat to Chess are numerous and varied: sowing shrunken seed; sowing in a certain time of the moon; injury by Hessian fly; eating off of the plants by stock or by fowls; trampling by animals, or injury by passing vehicles; drowning or freezing out during winter; cutting off the "tap" root in imitation of heaving during winter."

In this country Chess is generally supposed to grow only from fall wheat; but occasionally this faith is shaken by plants being found amongst spring wheat, oats and other crops. Many claim that although Chess seed will grow it will not reproduce itself. Upon informing one of my correspondents that a lady acquaintance had

grown it as an ornamental grass in her garden for many years, he writes me as follows: "I believe that your friend has led you astray. My reasons for saying so are that I have experimented upon the Chess question here, and if Chess seed will grow and produce Chess at Springfield it will not do so here. I sowed good Chess seed at the same time I sowed fall wheat; it grew nicely, looked well in spring; but it never headed out, and it had every possible chance. It is a bastard grain, and as such will never produce seed."

This gentleman, however, is trying again the present season, and at his request I am also trying the same experiment with him; 100 grains each of Chess and fall wheat were sown last September and each grain is marked with a small picket. One quarter is to be trampled on in the spring, and one quarter to be eaten off; part was uncovered and exposed to the frost during the winter and the growth of every plant will be noted, and left standing where grown, to be examined by all visitors to the Farm, where it will convince at any rate those who see it. And even if the information gained has not much value in advancing the agriculture of the country, at least it may prevent the waste of so much valuable time at farmers' institute meetings, where this subject so frequently comes up for discussion. As a botanist, of course, I know there can be only one result from this experiment; every grain of Chess which grows will bear Chess and every grain of wheat will produce wheat. As an experimenter I shall record the result exactly as it turns out, and shall not now anticipate those results, but they will be published in the next report of the Botanist to the Experimental Farms. There is only one remedy for Chess—to sow clean seed-wheat in clean land.

A knowledge of weeds and the best way to eradicate them is patently of great benefit to farmers. I shall at all times be glad to identify specimens of weeds or their seeds if sent to me at Ottawa. Valuable articles on this subject are now appearing in the *Farmer's Advocate* by Prof. Pantou, and it will well repay every farmer in Canada to procure a copy of the small work by Profs. Mills and Shaw of Guelph, the "First Principles of Agriculture." The following taken from it I endorse most heartily: "Weeds can be subdued, and if on any farm they are not subdued, the farmer's own apathy or indolence is to blame for it. If weeds that propagate themselves by their seeds (as all annuals and biennials) are prevented from ripening their seed, they must in the end all die out. If those which propagate themselves by their roots are kept from breathing the air by means of their leaves, they also must perish. Hence, if immediately when harvest is over all grain fields be gang ploughed once or twice, much is done towards destroying the weeds of a farm. A reference collection of the seeds of all Canadian weeds has been begun and will, I believe, be of interest to visitors to the Experimental Farm."

REPORT OF THE POULTRY MANAGER.

(A. G. GILBERT.)

TO WILLIAM SAUNDERS, Esq.,
Director Dominion Experimental Farms,
Ottawa.

SIR,—I have the honour of submitting to you the fourth annual report of the operations of the poultry department for the year ending 29th February, 1892. In the beginning of my report of last year a *formula* was given of a warm stimulating morning ration for winter, but varied so as to suit the Asiatic or Spanish families, for the stated reason "that the generous diet suited to the latter breed would tend to make the former too fat to lay well." The result of the treatment was considered satisfactory, so far as egg production was concerned, but it was thought that a ration just as effective, but a little more economical in its constituents, could be prepared. The importance of a cheap winter ration will be evident, for it is at this season when eggs are high in price—because they are scarce—that the margin of profit is greatest. Eggs are more difficult to obtain because the stock are confined to limited quarters, and they are more expensive to obtain because the layers require a more stimulating diet and more careful attention. Notwithstanding all that has been written on the subject of winter laying, correspondents write, visitors ask the questions: "What is the best method of feeding and caring for fowls in winter, so that I can obtain eggs?" From the North-West a correspondent writes: "Eggs are worth 60 cents per dozen here in winter. What kind of fowls are best, and how should I feed them to get eggs in paying quantities?" Again, a visitor says: "I can sell all my eggs at 40 cents per dozen in winter, but just as I am getting them in liberal numbers my fowls begin to lay eggs with soft shells." Another exclaims: "I am very much troubled with my fowls eating their eggs and one another's feathers."

These questions open up the whole subject of the proper winter treatment of laying stock, and they embrace three of the greatest and most discouraging drawbacks to the beginner's success in the shape of eggs laid with soft shells, and egg and feather eating. Answers can best be given by describing the rations fed this winter, and the reasons for so doing, other than that already mentioned.

THE RATIONS OF THE PRESENT WINTER.

The hot morning ration fed during the winter was composed of—

	Lbs. ozs.
Bran.....	2 8
Shorts.....	2 8
Ground meat.....	1 8
Clover hay—steamed and mixed in liberal quantity.	
Salt—very small quantity.	
Coarse sand and fine ground oyster shells mixed—about three handsfull.	

The whole was mixed with boiling water. Boiled potatoes and turnips were occasionally substituted for the clover hay, for variety in diet is beneficial. The hens did not eat the scalded clover hay when exposed to them by itself, but readily did so when mixed in the soft feed.

The results aimed at in feeding this ration were:—

1. Greater economy by the omission of cornmeal.
2. By supplying lime regularly in soft feed to prevent the laying of eggs with soft shells.
3. By avoiding too generous diet to prevent the hens from becoming so fat as to lay eggs with soft shells.
4. To avoid, by the omission of cayenne pepper or other condiments, a highly stimulating ration, often the cause of eggs being laid with soft shells, or without any shells.
5. To prevent egg-eating, which follows the laying of eggs with soft shells.
6. By the regular feeding of meat and keeping the fowls in active exercise to prevent feather eating, generally caused by the omission of both.
7. To prevent the acquiring of the bad practices named, the cure being very difficult.
8. To furnish the hens, as nearly as possible, with what they can pick up for themselves when running at large outside, such as: insects, in the shape of ground meat; grit (to aid digestion), in the shape of gravel and broken oyster shells; lime, in the shape of ground oyster shells; green stuff, in the shape of clover hay (steamed), cut short and mixed in soft feed, carrots, cabbage, turnips, &c.

At noon, when grain was given, oats were fed in small quantity.

For the afternoon ration wheat was given, with barley (occasionally), mixed in equal quantity. Vegetables, such as carrots, mangels and turnips, were kept always on the floor of the pens. Very little cabbage was fed during the winter.

The rations, as aforementioned, were fed to the following stock in the main building:—

	Pullets.	Hens.
Plymouth Rocks	11	12
Brahmas.....	—	10
Langshans.....	—	4
Buff Cochins.....	—	8
White Leghorns	10	9
Wyandottes	9	4
Andalusians.....	8	6

Among this stock will be noticed numerous hens, some of them old hens, so-called because they were over two years, and kept for breeders and sitters during the coming season. As there was no alternative, they were placed with the pullets, a practice to be avoided when possible, for the reason given in report of last year, "that the ration which would go to eggs in the pullets would likely make the hens too fat to lay."

The effect in eggs of the rations on the pullets and hens is given as follows:—

	From 9th December.	January.	February.
11 Plymouth Rock pullets.	74	105	50
5 do hens.	25	18	15
9 White Leghorn pullets	81	112	124
8 do hens.	16	20	18
9 Wyandotte pullets.....	29	50	99
4 do hens.	15	22	15
5 Buff Cochins.....	17	40	22
4 Langshan hens.....	7	21	5
8 Brahma hens.....	4	13	11
9 Houdan hens.....	.....	2	10

It may be said that the showing is not a good one for the number of stock, but it must be borne in mind that the feeding was only experimental. The result, how-

ever, is striking proof of the great value of pullets over old hens as revenue producers, under the same conditions as to housing, care and feeding. The superiority of young stock over old has long been known to experienced poultry keepers, but the fact is appreciated by comparatively few farmers. The conclusions to be arrived at from the experiment are:—

1. That no hens should be kept over two years. Because, after that age they moult so late that the prospective profit is eaten up before they begin to lay.
2. No soft-shelled eggs were laid by the pullets, showing that they are not as likely to do so as the old stock; that the daily mixing of coarse sand, fine gravel and sifted oyster shells in small quantities has a preventive tendency.
3. That no eggs nor feathers having been eaten, to date of writing, the regular supply of ground meat mixed in soft feed is to be recommended.
4. A small quantity of salt was mixed daily in the hot morning ration, but as it created looseness among the Brahmas, Cochins and several Plymouth Rock hens, its use was given up.
5. The feeding of vegetables, viz., carrots, mangels, turnips, &c., &c., in generous quantity, had the effect of keeping the hens in excellent condition, and is necessary for the production of eggs.
6. Scattering the grain food among the straw and chaff always on the floors of pens, kept the fowls (particularly the young ones) active. This grain food should not be fed in too great quantities.

AS MUCH RANGE OR ROOM AS POSSIBLE.

While on the subject of winter laying it may be stated that the layers do better when they can enjoy as much freedom as possible. Many farmers have their poultry houses so situated that with very little trouble or expense they can so arrange as to allow their fowls, access to a barn, stable or enclosed shed, where gravel, sand, coal ashes or other substances may be found for the hens to scratch in. Fowls so situated are not likely to give trouble in the way of eating eggs or feathers or laying eggs with soft shells. But there are others, and perhaps the great majority, who can only allow their laying stock limited quarters from the time of shutting in until the warm spring sun makes bare the earth again. It is to such persons that the results of the experiments enumerated above and the experience gained as to the breeds which stand confinement best will be of most value.

BREEDS WHICH HAVE LAID BEST IN WINTER.

The experience of the past four winters proves that the breeds which are often stated to be the most unsuited to cold climates lay the best. It is often said by the inexperienced, or the prejudiced, that fowls with large combs are not suited for winter layers, because their combs will freeze. If any one wishes to make revenue from his winter eggs he must not keep his layers where their combs will freeze.

There is reason and intelligence to be exercised in the treatment of winter layers as there is in the winter caring of other stock. Of the hens with the large combs, such as Leghorns, Minorcas and Andalusians, no better winter layers or hardier fowls can be had than the White Leghorns. The weight of the eggs laid by this variety will be found elsewhere. The Andalusians and Minorcas are also excellent winter layers, but require to be kept active, as do all the Spanish class. Plymouth Rocks and Wyandottes are well known winter layers. Members of the Asiatic family, viz., Brahmas, Buff Cochins and Langshans require to be hatched out early in the season to make early layers. They require to be skilfully handled during the close confinement of winter to prevent them becoming too fat. A farmer will not make a mistake by choosing his winter layers from the Leghorns, Plymouth Rocks or Wyandottes. The Wyandottes, perhaps, come as nearly filling the bill as possible, having little or no comb, and are good layers. The Houdans did not seem to stand the confinement to winter quarters as well as other breeds. The following classification may serve as a guide in making a choice from the best known breeds:—

Breeds with large combs.—Leghorns, Minorcas, Andalusians, Black Spanish.

Breeds with small combs.—Wyandottes, Brahmas, Cochins, Houdans.

Breeds with medium-size combs.—Plymouth Rocks, Dorkings, Black Javas, Langshans.

Breeds with rose comb.—Leghorns, Hamburgs, Red-caps, White Dorkings, &c.

BREEDING PENS MADE UP.

The breeding pens were made up at the following dates:—

Breed.	Number in Pen.	When Mated.
Wyandottes	1 cockerel, 5 hens.....	March 12.
Plymouth Rocks.....	1 do 9 do	do 18.
Black Minorcas.....	1 cock, 6 do	do 19.
Black Hamburgs.....	1 do 7 do	do 19.
White Leghorns	1 do 15 do	do 21.

The male birds remained with the others breeds not mentioned, all winter.

Eggs set and Chickens Hatched.

When Eggs were Set.	No. of Eggs Set.	Description of Eggs.	No. of Chicks hatched.	When Hatched.	Remarks.
April 13....	13	Plymouth Rocks.....	3	May 4.	
do 18....	11	Wyandottes	8	do 9.	
do 18....	13	do	8	do 9.....	
do 18....	13	White Leghorns	11	do 9.....	
do 18....	13	Plymouth Rocks	7	do 9.	
do 18....	13	White Leghorns	7	do 9....	
do 21....	13	Plymouth Rocks.....	6	do 12.....	
do 24....	13	7 Plymouth Rocks, 6 Wyandottes	8	do 15.....	
do 24....	11	Plymouth Rocks.....	6	do 15....	
do 27 ...	13	Houdans.	6	do 18.....	
do 30....	13	Andalusians	10	do 20.....	
May 1....	13	do	6	do 21.....	
do 2....	13	6 Langshans, 7 B. Cochins.	5	do 22.....	
do 4....	13	7 Brahmas, 6 do	3	do 24....	
do 25....	13	7 Houdans, 6 Black Minorcas	8	June 15....	
do 28 ...	13	6 Andalusians, 7 do	8	do 18.	
June 1....	13	6 do 7 do	9	do 22.....	
do 19....	13	Mixed.....	10	July 10....	

Two settings of eggs of the following breeds were purchased for the purpose of introducing new strains, viz., White Leghorns, Wyandottes, Plymouth Rocks and Andalusians. The chicks from these eggs with two or three exceptions were strong, vigorous and well marked. The majority of them are now used as breeding stock and with equally well-bred males should give good results.

As in previous years, the sitters were placed in comfortable nests, some on the damp earth of the cellar and others on the dry board floor of the upper compartment of the main building. The report of 1890, page 209, contains full particulars as to the proper management and treatment of sitting hens. Before giving the sitter valuable eggs it is better that she be placed on a nest made of short cut straw, and well dusted with carbolic acid disinfecting powder. Three or four china eggs should be placed in the nest and the sitter allowed to remain on these for two days. The valuable eggs should then be given to her. The probability is that the disinfecting powder has meanwhile driven away vermin that might have been on the hen and she will sit with comparative ease and quiet, which she could not do if annoyed by lice. Many settings of valuable eggs are lost every season from the lack of the necessary attention to the sitter.

DRY BOARDS *versus* DAMP GROUND.

The experiment of placing a certain number of eggs on the damp ground and dry boards, with a view of ascertaining hatching results, was continued, with less satisfactory results from the dry boards. The following will show the number of chickens obtained by the different methods:—

When Set.	Number of Eggs Set.	Kind of Sitter.	Number of Chickens Hatched.
<i>Dry Boards.</i>			
April 21.....	13	Brahma.....	6
do 24.....	13	Black Russian.....	8
do 29.....	13	Cochin.....	6
May 1.....	13	Plymouth Rock.....	6
do 2.....	13	Mixed hen.....	5
do 4.....	13	Plymouth Rock.....	3
			34
<i>Damp Floor.</i>			
April 18.....	11	Coloured Dorking.....	8
do 18.....	13	Wyandotte.....	8
do 18.....	13	Buff Cochins.....	11
do 18.....	13	do.....	7
do 18.....	13	Plymouth Rock.....	7
do 30.....	13	do.....	10
			51

In the eggs placed on the dry boards there were a number of chickens which had attained to full size but had died, apparently unable to break through the thick integument enclosing the chick inside the shell, and which was unusually dry and tough. In other cases the eggshells seemed to be dried on to the dead chicks so as to make it difficult to separate them, and the best way to do so was to soak both the chick and shell in warm water. It seemed as if it would have had a beneficial effect to have sprinkled the eggs with luke-warm water some times previous to the hatching period. The absence of moisture seemed to have had an injurious effect.

It may be interesting as another experiment to place eggs on the dry boards and sprinkle them occasionally during the hatching period.

TREATMENT OF THE YOUNG CHICKS.

After hatching, the chickens were allowed to remain in the nest for 18 or 24 hours, so as to become thoroughly "nest ripe." Their first meal consisted of stale bread soaked in milk and squeezed dry. This was continued for nearly a week, with dry bread crumbs for a change. As the chickens grew, a more substantial mixture of shorts, cornmeal and bran was fed, lightly at first and more frequently afterwards. It is most important that the chicks should be fed lightly but often. They should never be allowed to remain hungry for any length of time. A neglected chicken will never make a good market fowl. Full instructions as to the care and management of growing chickens will be found in report for 1890, page 212.

PROGRESS OF THE CHICKENS.

The chickens grew rapidly, the Plymouth Rocks and Wyandottes making the most rapid headway, as follows:—

Plymouth Rocks.

Four Plymouth Rock cockerels, hatched on the 12th of May, weighed, on 21st of August following, 3 lbs. 14 ozs., 3 lbs. 8 ozs., 3 lbs. 8 ozs., 3 lbs. 5 ozs., respectively.

On the 7th of October the same birds weighed 6 lbs. 8 ozs., 5 lbs. 14 ozs., 5 lbs. 6 ozs., 5 lbs. 2 ozs.

On the 23rd November, 7 lbs. 4 ozs., 7 lbs. 2 ozs., 6 lbs. 14 ozs., 6 lbs. 12 ozs.

On the 5th December, 7 lbs. 8 ozs., 7 lbs. 4 ozs., 6 lbs. 12 ozs., 6 lbs. 12 ozs.

Wyandottes.

Four Wyandotte cockerels, hatched on the 8th of May, weighed, on the 21st of August following, 3 lbs. 13 ozs., 3 lbs., 2 lbs. 8 ozs., 2 lbs. 8 ozs. It will be noticed that the first mentioned Wyandotte was only one ounce behind the heaviest Plymouth Rock of very nearly the same age. This was a remarkably good result, and goes to show that the Wyandottes make a rapidly-maturing and heavy market fowl.

On the 7th October the same Wyandotte cockerel weighed 6 lbs. 2 ozs., as against 6 lbs. 8 ozs. of the Plymouth Rock, being only 6 ozs. behind.

On the 23rd November the Wyandotte weighed 6 lbs. 14 ozs., as against 7 lbs. 4 ozs. for the Plymouth Rock.

Buff Cochins.

A Buff Cochins cockerel, hatched on the 4th of May, weighed, on the 21st of August following, 4 lbs. 6 ozs.; on the 7th October, 7 lbs. 8 ozs.; on the 23rd November, 7 lbs. 8 ozs. As compared with the Plymouth Rocks and Wyandottes this, at first sight, may seem a good showing, but it must be borne in mind that a great part of the weight of the Buff Cochins was made by his large, bony frame, while the bones of the Plymouth Rocks and Wyandottes were smaller, and their weights were consequently more in flesh—a very important consideration when choosing a breed to produce early market chickens.

WHEN THE PULLETS LAID.

A White Leghorn pullet, hatched on the 9th of May, was the first of the young stock to lay on the 21st October. A Wyandotte pullet, hatched on the 8th of May, laid her first egg on the 5th December, and she was followed on the 7th of the same month by a Plymouth Rock pullet, hatched on the 12th of May. An Andalusian pullet, hatched on the 21st May, laid on the 10th December, and others of the same breed soon after. The experience of every year goes to prove the advantage of

early chickens. Late chickens are stunted by the cold weather, and never possess the vigour nor attain to the size the others do. The chickens that are put out on the first grass seem to thrive the best.

SHIPMENT OF STOCK AND EGGS.

The demand for eggs for hatching during the spring season was so large that it was impossible to fill all orders. At any time there can only be a limited number of eggs to sell, for there are the branch Experimental Farms to supply and the chickens to raise for our own purposes. On the 9th November the following stock was shipped to the Brandon, Manitoba, Experimental Farm: 1 cockerel, 3 hens, White Leghorns; 1 cockerel, 3 hens, Plymouth Rocks; 1 cock, 3 hens, Wyandottes. Several cockerels of the different breeds were purchased by—and shipped to—farmers in different parts of the country, for the improvement of their stock. As a general rule, the farmers of the country inbreed from one year to another, with a loss of vitality and size to their stock.

COMMENCEMENT OF WINTER LAYING.

The fowls were put into winter quarters on the 18th November, when the weather became cold, but on the 3rd of December it became warm again and the fowls were let out into their runs, and were able to be out daily until the 17th of the month, when they were shut in for the season. Moulting was got over early by most of the stock, and they went into winter quarters in good health. Winter laying began during the first week in December and continued during the winter. The first breeds to lay were the White Leghorns, Plymouth Rocks, Black Minorcas, Andalusians and Wyandottes.

DISEASES OF POULTRY.

Except in the case of a very valuable fowl, it is not desirable for a farmer, or any one else, to lose time in attempting to doctor a sick fowl. In a case of roup it is better to at once kill the bird and burn its remains, as the disease makes rapid progress, and if once established in a flock is almost impossible to get rid of. Roup is known in its first stages by the fowl sneezing, wheezing or snuffling, sometimes accompanied by a discharge from the nostrils. Later on the discharge becomes thicker and has a very offensive odour. Sometimes the head swells so as to completely close the eyes, the fowl refuses to eat, and eventually dies in a very emaciated condition. There are several forms of roup, all of which are infectious and contagious. Should a fowl be running at the nostrils and escape detection the *virus* is conveyed to the others by the sick one dipping its beak into the drink water and so contaminating it. As showing the beneficial effects of killing off the affected fowls and thoroughly disinfecting the premises, in a case of a very stubborn nature, the following correspondence will be interesting:—

“SASKATOON, 19th September, 1891.

“DEAR SIR,—I take the liberty of writing to you to see if you can inform me what is the matter with my fowls and what is likely to cure them. The disease has been amongst them for two years and we have lost from 50 to 100, and they are still going. I have written to the poultry papers and tried all remedies that I have heard of. The first sign of anything wrong is heavy breathing. Then they commence to rattle, as if breathing through phlegm. They show no sign of being sick until their combs begin to turn dark. Then they appear ill, and finally die. For some days before they die they smell very bad. If you could give me the needed information you would confer a very great favour.

“Yours very truly,
“DAVID LUSK.

“SASKATOON, N.W.T.”

Mr. Lusk was informed in reply that his fowls had roup, and as it had been among them so long, energetic and immediate action was necessary. He was advised to kill all the ailing ones, and all those appearing the least sick; to burn or bury their remains and thoroughly disinfect the fowl-houses, and then whitewash liberally, with carbolic acid liquid mixed in the whitewash; meanwhile, to keep the remaining fowls away from the infected premises, if at all possible.

On the 5th of November Mr. Lusk wrote that he had found the remedies of the poultry papers a failure; that he was then killing the sick ones off, fumigating the house with sulphur and keeping it as clear as possible. Still, he says, they seem to take it.

In reply he was advised to keep killing the sick ones off as soon as symptoms showed themselves; to continue the disinfecting and thoroughly whitewash. Some pills prepared according to the formula found effective in the treatment of the farm fowls was sent to him, to try as an experiment on any cases that he might take the trouble of isolating and reporting on.

Some time afterwards the following letter was received, and tells of his success in staying the disease:—

“SASKATOON, N.W.T., 11th January, 1892.

“DEAR SIR,—I am glad to be able to report that, for some time before and since the arrival of your letter containing the pills, we have not had a case of roup amongst our hens.

“Having lost all faith in all known remedies about the time your second letter arrived, I acted upon the advice given therein, to kill all the affected ones, and appearances now are that the trouble is over. At present the hens look healthy and are beginning to lay.

“Many thanks for advice given and trouble taken by you for my benefit.

“Your obedient servant,

“DAVID LUSK.

“SASKATOON, N.W.T.”

ANOTHER INTERESTING CASE.

The publication of the following case, and the treatment for it advised by Prof. Wesley Mills, of the Physiological Laboratory, McGill University, Montreal, may be useful to others:—

“STROMNESS, 18th January, 1892.

“Manager Poultry Department,
“Experimental Farm, Ottawa.

“DEAR SIR,—Having received the yearly report of the experimental farms, I notice that you aid farmers in curing the diseases of their poultry. I am much interested in poultry on the farm as a means of profit. My fowls are troubled with a disease that has caused me serious loss for three years past. The sick fowls get pale around the comb and dumpish. Some linger along for a month or two, and others die in a week or two from the time I notice they are attacked. I aim to get eggs in winter, and feed liberally. I get more eggs than any farmer around, considering the number of hens I keep, but they keep dying off. I kill them and bury them. Those that I have opened have all enlarged livers; in fact, their livers are so large as to fill the hen so full as to displace the other organs. Some have enlarged kidneys as well. One liver I weighed came to three-quarters of a pound. If the fowls were allowed to die all their livers would weigh the same. Some of the livers have whitish spots on them, appear to be very tender, and are much filled with water. My fowls are in too limited quarters, but will soon have more room. Hoping for your advice.

“Yours very truly,

“HENRY E. DICKHOUT.

“STROMNESS, ONT.”

The case was deemed so important that the letter was forwarded to Professor Wesley Mills, asking his opinion and advice in the interests of the farming community. With his usual kindness, Dr. Mills returned the following reply:—

“ PHYSIOLOGICAL LABORATORY, MCGILL UNIVERSITY,
“ MONTREAL, 13th February, 1892.

“ Manager Poultry Department,
“ Experimental Farm, Ottawa.

“ DEAR SIR,—I have your favour of 11th February, enclosing Mr. Dickhout's letter. From the clear and intelligent account this gentleman gives, I have little doubt that the fowls are suffering from fatty degeneration of the liver, owing to over-feeding and lack of exercise, exaggerated possibly by inadequate ventilation from the ‘limited quarters.’ Whether there be also cystic disease from parasites or tubercle, it is impossible for me to say without seeing one of the livers.

The remedies are obvious—feeding on oats with vegetable food, scattering with chaff among straw on the floor and enlarging the quarters.

“ Truly yours,

“ WESLEY MILLS, M.D.”

INCUBATOR TRIAL.

On the 13th May 96 eggs were put into an incubator purchased some years ago from A. W. Bessey, of St. Catharines, the manufacturer. The eggs were from the mixed hens which had been running outside for some time and were likely to be fertilized. Careful note was taken of the temperature of the incubator at 7 a.m., 12 noon, 4 p.m. and 8 p.m. The proper temperature to keep was 103. The greatest variations of temperature were on the 17th of May, when the thermometer in the egg chamber rose to 105 for a short time in the morning, and on the 16th May, when 97 was registered in the morning. The desired figure of 103, with these exceptions, was kept with remarkable regularity, but the result was very unsatisfactory. Four chickens only hatched. Examination of the remaining eggs showed five well-developed chicks dead in the shell; 39 ditto imperfectly developed; 17 just started, and 23 eggs with no sign of development, probably not fertilized. It should be stated that the incubator was constructed with two tanks, one on the upper and the other on the lower part of the egg chamber, with the eggs placed on a tray between the tanks. This principle of hatching eggs has received unstinted condemnation. All incubators are now constructed with one upper tank, the eggs being placed underneath and subject to the “top heat.” The contention is that the eggs are hatched by the top heat of the hen. The numerous enquiries by letter as to the most improved method of incubation indicate increasing interest in the subject. It is beyond question that artificial incubation is more generally and successfully prosecuted at present than it ever was before in this country, and its advantages can hardly be overestimated.

EGGS KEPT IN DIFFERENT TEMPERATURES AND IN DIFFERENT SUBSTANCES.

The experiments with eggs kept at different temperatures and packed in different substances, in order to ascertain how long they would keep without spoiling, was continued from date of last test, 24th February, 1891, and numbered “Examination 26.”

Examination No. 27.—On 14th March, 1891, examined an egg laid first week in August, 1890, and kept in drawer of table in office of main poultry building, placed there the same week it was laid. Contents quite sweet and free from all mustiness.

Examination 28.—On 14th March, 1891, examined an egg laid on the 27th October, 1890, and which had been packed in bran and kept in cellar. Yolk firm and round; quite sweet and free from odour; albumen clear and bright.

Examination 29.—On 14th March, 1891, examined an egg laid on the 29th October, 1890, and which had been kept in the incubator at temperature of 78 to 84 till 11th February, 1891, and afterwards in cellar. Free from odour or mustiness; albumen evaporated until 50 per cent was gone.

Examination 30.—On 14th March, 1891, examined an egg laid on 5th November, 1890, and kept part of the time in incubator at temperature of 78 to 84 and part of the time out. Contents lessened in volume about one-third by evaporation of albumen; yolk adherent to side and at point of adhesion of musty taste; otherwise contents perfectly sweet.

Examination 31.—On the 14th March, 1891, examined an unfertilized egg laid on 9th December, 1890, and placed in incubator on 23rd December, 1890, and kept there at temperature of 78 to 84 until 11th February, 1891, and afterwards kept in cellar. Contents quite sweet and free from odour; albumen a little cloudy; air space occupied about one-fifth of egg shell.

Examination 32.—On the 14th March, 1891, examined an egg taken from the lot greased with lard and packed in salt on the 10th November, 1890, and kept in cellar. Contents quite sweet; yolk firm; has every appearance of a fresh egg.

Examination 33.—On the 14th of June, 1891, examined an egg kept in drawer of table in office from 25th March, 1890. Air space double the natural size; yolk firm; white nearly transparent; contents perfectly sweet.

Examination 34.—On the 14th of June, 1891, examined an egg laid on 27th October, 1890, and put away in bran in a box, with others, in the cellar on the 29th October, 1890; yolk firm; white transparent; contents perfectly sweet; has every appearance of a fresh egg.

Examination 35.—On the 4th June, 1891, examined an egg laid on the 3rd November, 1890, greased and packed in salt with others and kept in cellar. Yolk moderately firm; white almost transparent; contents quite sweet, and free from all odour or mustiness.

Examination 36.—On the 4th June, 1891, examined an unfertilized egg laid on the 17th December, 1890, and kept in incubator from 23rd December, 1890, to 11th February, 1891, at a temperature of 78 to 84; afterwards kept in cellar. Air space occupied one-fourth of space of shell; yolk firm; white almost transparent; contents perfectly sweet and free from all mustiness.

Examination 37.—On the 14th of June, 1891, examined an egg laid on the 30th October, 1890, and kept constantly in incubator at temperature of 78 to 84 until 11th February, 1891, when it was afterwards left in an open basket in cellar. Egg evaporated so as to fill only half of shell; very little white remaining; surface of yolk covered with a coating of mould, giving the egg a musty odour; when the surface with the mould was removed the remainder of the yolk was found quite free from mustiness or any other odour, and quite sweet to the taste. The white, however, had a musty flavour, but not in any sense putrid.

Examination 38.—Examined on the 4th of June, 1891, an egg laid on the 3rd of January, 1891, and was probably in and out of the incubator till 11th of February following. Air space about twice natural size; yolk firm; white nearly transparent; contents perfectly sweet, and free from all mustiness.

On the 18th March, 1892, a final examination was made of the eggs packed away, or kept in the incubator and cellar, as above stated, and it was found that they had, in the great majority of cases, lost their fluid contents and had become musty; but only two or three out of the number could be put down as being positively bad.

Examination also was made of an egg which was laid in August, 1890, and left in the drawer of the table in the office of the poultry building until it was opened on the 18th March, 1892, when the contents were found to be dried up and the yolk quite solid and firm, but quite free from any offensive or musty odour.

Examination was made at the same time of other eggs which had been put in the drawer of the table in the office during the month of April, 1891, and left there since untouched, till date of opening, as given below, with date when laid and result of examination.

No. 1.—An egg laid on the 20th March, 1891, and opened on 18th March, 1892, was found as follows:—Air space fills one-third shell; yolk firm and natural in colour; white nearly transparent; slightly clouded; contents quite sweet, and free from all mustiness or unpleasant odour.

No. 2.—Laid 4th March, 1891. Yolk natural in colour; just like No. 1, but yolk partly adherent to shell.

No. 3.—Laid 27th March, 1891. Same as No. 2, but air space fills more than one-third of shell.

No. 4.—Laid 20th March, 1891. Same as No. 3.

No. 5.—Laid 22nd March, 1891. Quite sweet; white entirely evaporated; yolk firm and sticky, but natural in colour, and quite free from mustiness or any offensive odour.

No. 6.—Laid 18th March, 1891. Air space fills about half of egg; white more than half evaporated; nearly transparent, slightly clouded; yolk of natural colour, but much firmer than natural; contents quite sweet, and free from all mustiness.

No. 7.—Laid 18th March, 1891. Contents occupy about one-third of the shell; yolk very firm and sticky; quite sweet, and free from all mustiness.

Nos. 8, 9 and 10.—Same as No. 7, except No. 10, which has a small quantity of albumen, but quite sweet.

WEIGHT OF EGGS.

During the past year much attention has been directed to the size of eggs and the breeds that lay them. It is well known that the breeds which lay the most eggs do not always lay the largest—for instance, take the Black Hamburgs, which lay from 200 to 240 eggs per annum, under favourable conditions, but their eggs are much smaller than those of any other of the standard breeds. On the other hand, the Brahmas, which are credited with laying an egg of large size, only lay 80 to 100 per annum, while there are a number of breeds which lay eggs of medium size and number. Again, different strains of the same breed lay eggs of different size. Pullets do not lay as large eggs as they do when they are hens. Fowls which lay all winter do not lay, as a rule, as large eggs as the hens that have been idle during that time, and only begin to lay when the warm spring weather sets the egg machinery in motion. Eggs laid by hens in confinement are not as large as the eggs laid by the same hens when running at large. It will be said by one person that the White Leghorns lay a small egg as compared with those from the Plymouth Rock and Brahma. Soon after another person will be heard to express surprise at the small eggs laid by their Brahmas or Plymouth Rocks as compared with their neighbour's White Leghorns. Some of the eggs laid by the Farm Buff Cochin hens of the same age are remarkable in their difference of size, one hen laying during last month an egg weighing $2\frac{1}{4}$ ounces, while an egg laid about the same time by her full sister only weighed $1\frac{3}{8}$ ounces. Both hens were kept in the same pen under the same conditions.

In view of the differences noted above, the following table of the weights of eggs of different breeds will be read with interest. It may be stated that the weighing was done on one of the scales in the Chemist's laboratory.

HENS' EGGS.	Lbs.	Ozs.
Plymouth Rocks, single egg.....		2 $\frac{3}{8}$
do per dozen.....	1	11
Brahmas, single egg.....		2 $\frac{1}{8}$
do per dozen.....	1	9 $\frac{1}{2}$
do single egg, weighed May; hens out....		2 $\frac{1}{2}$
do per dozen do do.....	1	13
Buff Cochins, single egg.....		{ 1 $\frac{3}{8}$ 2 $\frac{1}{4}$
do per dozen.....	{ 1 1	8 10
White Leghorns, single egg.....		2 $\frac{1}{4}$
do per dozen.....	1	10
Wyandottes, single egg.....		
do per dozen.....	1	9
Andalusians, single egg.....		2 $\frac{1}{4}$
do per dozen.....		
Black Minorcas, single egg.....		2 $\frac{3}{8}$
do per dozen.....	1	11
PULLETS' EGGS.		
White Leghorns, single egg.....		1 $\frac{9}{10}$
do per dozen.....	1	7 $\frac{3}{4}$
Red Caps, single egg.....		2
do per dozen.....	1	7 $\frac{1}{5}$
Plymouth Rocks, single egg.....		2
do per dozen.....	1	6 $\frac{1}{8}$
Wyandottes, single egg.....		2
do per dozen.....	1	7
Houdans, single egg.....		2
do per dozen.....	1	8
Black Minorcas, single egg.....		2
do per dozen.....	1	7
Coloured Dorkings, single egg.....		2
do per dozen.....		

THE POULTRY SHOW AT THE INDUSTRIAL.

During the second week of the industrial fair held in Toronto in the month of September last a visit was paid to the poultry exhibit, which was up to a high standard of excellence. The same excellent arrangements for accommodation, care and feeding of the stock so conspicuous the previous year were again noticed. At a meeting of the Ontario Poultry Association, held in one of the rooms above the main offices, upon invitation of the president, a short address was made, in which the progress of the work carried on at the Central Experimental Farm was described.

THE WILD GEESE.

At the beginning of May the wild geese were removed to runs outside, where they had access to tanks of water. They had apparently "paired," and the two pairs were placed in separate runs. Soon after one of the geese laid an egg, which was followed by three others. Two of the eggs were placed under a large Brahma hen, which was broody at the time, and the goose was allowed to sit on the remaining two, but did not sit contentedly, the nest being evidently in too exposed a place, and the eggs did not hatch. One of the eggs under the Brahma hen proved unfertile, while the other, at the end of 28 days, was found to contain a full-sized gosling, but dead in the shell.

ACKNOWLEDGMENT.

In the month of February last the poultry department was presented by Mr. John Gray, the well known Wyandotte breeder of Todmorden, Ont., with a very fine Wyandotte cockerel. The bird is of beautiful shape and markings, and is a valuable addition to the breeding stock.

AN INVITATION WESTWARD.

In the beginning of the month of January last an invitation was received from the Ontario Agricultural and Experimental Union to read a paper at the annual meeting of the association to be held at Guelph on the 28th and 29th of the same month. Having obtained leave, I was present at the meeting, which was well attended and was most successful, and read a paper entitled "Poultry in its relation to Agriculture," showing the magnitude and value of the poultry interests in this and other countries. Discussion followed, in which surprise was expressed that the farmers did not, as a rule, pay more attention to their poultry as a revenue maker, and manage so as to make their hens lay when eggs were at the highest price.

THE ADDITIONS TO POULTRY BUILDING.

The additions to the poultry building are now completed. They are composed of a building 78 by 12, divided into twelve pens, each 8 by 5 feet, with a middle compartment, with chimney for stove if necessary, and containing six feed bins. This building, which runs from east to west and is connected with the main house, contains twelve of the standard varieties to be used as breeding stock. At present the addition contains the following males and females, all of the highest order of excellence:—

- Pen 1.—White Leghorns; 7 pullets, 1 cockerel.
- 2.—Black Minorcas; 5 hens, 1 cock.
- 3.—Andalusians; 5 pullets, 1 cock.
- 4.—Plymouth Rocks; 7 pullets, 1 cockerel.
- 5.—Wyandottes; 5 pullets, 1 cockerel.
- 6.—Houdans; 5 hens, 1 cock.
- 7.—Black Hamburgs; 6 hens, 1 cock.
- 8.—Langshans; 4 hens, 1 cockerel.
- 9.—Buff Cochins; 5 hens, 1 cock.
- 10.—Red Caps; 3 pullets, 2 hens, 1 cockerel.
- 11.—Coloured Dorkings; 4 pullets, 1 hen, 1 cockerel.
- 12.—Golden Polands; 3 hens, 1 cock.

To this building another is connected, which runs southward. This addition, 96 feet in length by 13 in breadth, is also divided into 12 pens, some of which are 9 x 6, and others 9 x 7. Some of these pens are intended to hold fowls for experimental crossing and the remaining divisions will probably be devoted to geese, ducks and turkeys. There is also a middle compartment, with bins and chimney for stove. Both additions have lofts for holding straw and chaff to let into the pens below. Ventilating shafts run up both sides of the buildings at regular intervals. The inside fittings are of the same style as in the older building. Both additions present a roomy and handsome appearance.

VISITORS INCREASING IN NUMBER.

The visitors to the poultry department continue to increase in number every season. Among the visitors of last fall were several who contemplated going into poultry on a large scale, and who were anxious to get all the information possible as to the best paying breeds, methods of treatment of stock and construction of buildings, incubators, &c., &c. As in previous instances, all the necessary information was cheerfully given, and the methods experience had proved the best shown to them.

Enquiries by letter from farmers are also much more numerous, and indicate an increasing interest in their poultry, a department of their farms which, if properly managed, will not fail to yield a gratifying percentage of profit in return.

A FEW USEFUL HINTS.

Farmers will do well to remember the following :—

1. Do not inbreed.
2. Keep no hen over two years.
3. The old hens eat the profit made by the younger.
4. Convert the waste of the farm into eggs and poultry.
5. Too many early chickens cannot be raised. They represent so much ready money.
6. Make hens lay when eggs are highest in price and not when lowest, as is the practice.

In the reports of 1889 and 1890 much information will be found that space will not permit repetition of in this report. These reports may be obtained on application.

I have the honour to be, Sir,

Your obedient servant,

A. G. GILBERT,

Manager Poultry Department.

CENTRAL EXPERIMENTAL FARM,
29th February, 1892.

EXPERIMENTAL FARM FOR THE MARITIME PROVINCES.

REPORT OF W. M. BLAIR, SUPERINTENDENT.

To WILLIAM SAUNDERS, Esq.,
Director Dominion Experimental Farms,
Ottawa.

SIR,—I have the honour to submit herewith the following report of the operations on the Experimental Farm for the Maritime Provinces at Nappan, N.S., during the year 1891.

WEATHER.

The winter was changeable, with light snowfalls followed in most cases with rain, and changing again to periods of extreme cold.

The spring was dry, with cold winds extending into June; from that time until the end of the year, with the exception of October, the weather was all that could be desired for farm work. The work on the Experimental Farm commenced on 27th April; seeding began on the 30th and continued, with slight interruptions, until 12th June, when the last of the turnips were sown. With fine harvest weather all the crops were secured in good condition.

MANURE.

In addition to the barnyard manure made on the farm, 580 loads of marsh mud were drawn during the winter months. This was supplemented by some special fertilizers of the following kinds:—"Ceres" superphosphate, from Jack and Bell, Halifax, N.S.; the Archibald phosphate, from Samuel Archibald, Truro, N.S., and a few bags of Reliance and Victor fertilizer from the Nichols Chemical Co., of Capelton, Quebec. All of these were found to increase the crops materially.

HAY LANDS.

Both the English and the Broadleaf hay on the marsh was a light crop, while that on the upland was very heavy. About 60 tons of the former and 35 tons of the latter were secured in good condition. It was found necessary to build another brush heap and strengthen those already built, in order to protect the dykes from the heavy swell of high tides, and for this purpose 75 loads of brush and stone were used.

WHEAT.

The following statement shows the quantity of seed used and the names of the different varieties of wheat sown, the size of the plots, height of grain when mature, the condition of straw, when harvested, date of harvesting, weight of grain both in straw and when threshed.

This grain was sown on land where roots and corn were grown last year.

WHEAT.

Seed Sown.	Names.	Date of Sowing.	Size of Plots.	Height of Straw when Mature.	Condition when Out.	Date of Harvesting.	Weight of Grain and Straw.	Weight of Grain.	Weight per Bushel.	Yield per Acre of Grain in Bush. and Lbs.
Lbs.			Acre.	Inch.			Lbs.	Lbs.	Lbs.	
4½	White Fife.	April 29	1½	48	Strong, bright straw	August 26	200	80	52	26·40
4½	Indian Hard Calcutta	do 29	1½	34	Stiff straw; some rust.	do 20	170	45	56½	15·00
4½	Indian Hard Karachi	do 29	"	36	do	do 20	110	28	56	9·20
2½	Colorado.	do 29	4½	55	Bright straw; lodged	do 22	255	76½	61	
4½	White Cornell.	do 29	1½	45	do some lodged.	do 24	310	106	57½	35·20
4½	Rio Grande.	do 29	1½	54	Strong, bright straw	do 26	195	58½	58½	19·30
4½	Defiance	do 29	"	50	do	do 26	200	70	55½	23·20
4½	Australian	do 29	"	43	Weak straw; lodged	do 26	300	115	57½	38·20
4½	Gelmu	do 29	"	42	Soft straw; some lodged, and rust.	do 22	310	103	57	34·20
4½	Campbell's White Chaff.	do 29	"	48	Strong, bright straw	do 25	345	112	56	37·20
4½	Campbell's Triumph.	do 30	"	42	do	do 22	315	104	58½	
4½	Ladoga.	do 30	"	54	do	do 24	275	90	60	30·00
4½	Red Fern.	do 30	"	50	do	do 24	265	104	57	34·40
4½	Judket.	do 30	"	46	do	do 29	215	53	53	17·40
4½	Russian Hard Tag.	do 30	"	45	Soft straw; some rust	do 29	220	59½	59	19·50
4½	Saxonka	do 30	"	45	Bright straw	do 24	200	75	58	25·00
4½	White Delhi.	do 30	"	36	Short, rusty straw.	do 20	175	75	57½	25·00
4½	White Russian	do 30	"	48	Soft, bright straw.	do 25	290	90	57½	30·00
4½	Pringle's Champlain.	do 30	"	48	do	do 25	360	132	55½	44·00
4½	Wellman's Fife	do 30	"	54	do	do 24	265	106	55	35·20

In addition to the above, eleven varieties of winter wheat were sown on the 9th of September. This germinated well and made good growth before the first frost, but the absence of snow thus far during the winter and frequent changes of temperature are unfavourable for this crop.

OATS.

Twenty-five varieties of oats were sown in plots of one-twentieth of an acre each. A statement is given below of the results.

OATS.

Seed Sown.	Names.	Date of Seeding.	Size of Plots.	Height of Straw when Mature.	Condition when Cut.	Date of Harvesting.	Weight of Grain and Straw.	Weight of Grain.	Weight Bushel.	Yield per Acre of Grain in Bush.
Lbs.			Acre.	Inch.			Lbs.	Lbs.		
44	American Triumph	May	1 1/2	50	Bright straw ; some lodged	August 25.	345	132	38	77 22
44	Banner	do	"	56	do	do 21.	368	160	35	94 04
44	Black Tartarian	do	"	51	Some rust	do 22	335	149	35	87 22
44	Bonusa	do	"	50	Stiff, bright straw.	do 18.	375	132 1/2	39 1/2	77 32
44	Canadian Triumph	do	"	60	do	do 15.	377	146 1/2	42	86 06
44	Egyptian	do	"	50	do	do 22.	365	119 1/2	39 1/2	70 05
44	Challenge (Webb's)	do	"	54	do straw ; some rust.	do 18.	430	155 1/2	34 1/2	91 11
44	Prolific Black Tartarian	do	"	54	do bright straw	do 25.	420	165 1/2	38 1/2	97 17
44	Early Blossom.	do	"	50	Some rust	do 22.	385	133	38	78 08
44	Early Racehorse.	do	"	42	Bright, strong straw.	do 20.	358	126	42	74 04
44	Flying Scotchman.	do	"	42	do	do 20.	368	162	40 1/2	95 10
44	Poland White	do	"	52	do	do 17.	370	146 1/2	39	86 01
44	Giant Swedish	do	"	56	Some rust	do 28.	376	156 1/2	33 1/2	91 31
39	Prize Cluster	do	1 1/2	51	Strong, bright straw.	do 17.	248	118 1/2	38 1/2	104 19
44	Rennie's Prize White.	do	1 1/2	52	do	do 15.	327	123 1/2	40 1/2	72 17
44	Victoria Prize.	do	"	56	do	do 19.	308 1/2	130	40	88 08
44	White Russian	do	"	54	Soft straw ; some lodged	do 22.	460	161 1/2	38	95 00
44	Early English White.	do	"	42	Bright, strong straw	do 22	310	120	40	70 20
44	New Zealand.	do	"	52	Soft, bright straw ; some lodged	do 27.	585	207	34 1/2	121 26
44	Welcome.	do	"	41	Bright straw ; some lodged	do 22.	350	105	35	61 26
44	American Beauty	do	"	45	Some rust lodged	do 25.	465	216	38 1/2	127 02
44	Early Archangel.	do	"	57	Soft, bright straw	do 19.	415	192 1/2	38 1/2	113 08
44	Holstein Prolific.	do	"	48	Strong do	do 22	370	171	36	100 20
44	Rosedale	do	"	57	Some rust	do 22	440	209	38	122 32
44	Hazlett's Seizure	do	"	54	Bright straw ; some lodged	do 19.	352 1/2	138 1/2	39 1/2	81 11

These oats were grown on well drained land that had a dressing of marsh mud, drawn during the winter, spread in the spring and worked up with the top soil into a seed-bed before sowing.

BARLEY.

EIGHTEEN varieties of Barley were sown on land that Roots and Co. n were grown on last year, on plots of $\frac{1}{2}$ of an acre each, with the following results:—

Weight of Seed.	Names.	When Sown.	Size of Plot.	Height of Straw.	Condition when Grown.	Date of Harvesting.	Weight of Grain and Straw.	Weight of Grain.	Weight per Bushel.	Yield per acre in Bushels and Lbs.
Lbs.			Acre.	In.			Lbs.	Lbs.	Lbs.	Lbs.
4 3/4	Prize Prolific.	May	5	36	Some rust ; lodged	Aug. 20	400	120	48	50 00
4 3/4	Seale.	do	5	38	do	do 20	300	124	50	51 32
4 3/4	Golden Melon.	do	5	39	Soft, bright straw.	do 20	324	125	50	52 04
4 3/4	Danish Chevalier.	do	5	39	do some rust.	do 21	265	106	47	44 08
4 3/4	Improved Chevalier.	do	5	38	do do	do 22	310	107	47	44 28
4 3/4	Peerless White.	do	5	42	do do	do 24	325	114	45 1/2	47 24
4 3/4	Thanet.	do	5	41	do do lodged	do 21	250	109	48 1/2	45 20
4 3/4	Kinver (Webb's).	do	5	42	do do	do 21	274	116	51 1/2	48 16
4 3/4	Duck-bill.	do	5	48	Bright straw ; lodged	do 18	451	185	51 1/2	77 04
4 3/4	Goldthorpe.	do	5	48	do do	do 25	410	152 1/2	47	63 31
4 3/4	Baxter's Six-rowed.	do	5	42	do	do 12	360	112 1/2	45	46 42
4 3/4	Rennie's Improved.	do	5	40	do	do 13	384	138	46	57 24
4 3/4	Odessa.	do	5	40	Soft, bright straw ; some lodged	do 12	402	146	45	60 40
4 3/4	Oderbruch.	do	5	42	do do	do 11	426	171 1/2	49	71 22
4 3/4	Mensury.	do	5	48	do straw	do 11	376	157 1/2	45	65 30
4 3/4	New Golden Grains.	do	5	40	do do	do 22	165	59	47 1/2	24 28
4 3/4	Guaymalaye.	do	5	36	Some rust	do 22	100	47 1/2	47 1/2	19 38
60	Large Two-rowed Naked.	do	5	30	Short, strong straw	do 13	...	658	58 1/2	41 06

EARLY AND LATE SEEDING.

Below is a statement showing the results obtained from sowing the same kinds of wheat, barley and oats at different periods, one week intervening between each seeding. The size of the plots was one-tenth of an acre.

WHEAT.

—	Quantity of Seed.	Names.	Date of Seeding.	When Harvested.	Weight of Straw and Grain.	Total Weight of Grain.	Weight per Bushel.	Yield per Acre in Bushels and Lbs.
	Lbs				Lbs.	Lbs.	Lbs.	
1st plots.	9	Campbell's White Chaff.	April 30..	Aug. 22..	510	177	59	29'30
	9	White Connell.	do 30..	do 27..	450	171	57	28'30
2nd plots.	9	Campbell's White Chaff.	May 7..	do 26..	500	204	58½	34'00
	9	White Connell.	do 7..	do 29..	550	196	56	32'40
3rd plots.	9	Campbell's White Chaff.	do 14..	do 29..	560	207½	55½	34'35
	9	White Connell.	do 14..	Sept. 4..	465	171	57	28'30
4th plots.	9	Campbell's White Chaff.	do 21..	do 8..	675	196	56	32'40
	9	White Connell.	do 21..	do 9..	586	199½	57	33'15
5th plots.	9	Campbell's White Chaff.	do 29..	do 16..	600	196	56	32'40
	9	White Connell.	do 29..	do 18..	667	191¼	51	31'52
6th plots.	9	Campbell's White Chaff.	June 5..	do 18..	575	156	52	26'00
	9	White Connell.	do 5..	do 19..	576	162½	50	27'05

The Campbell's White Chaff had in all cases bright, strong straw. The Connell lodged somewhat.

BARLEY.

Plots of one-tenth acre each sown.

—	Quantity of Seed.	Names.	Date of Seeding.	When Harvested.	Weight of Straw and Grain.		Weight per Bushel.	Condition when Cut.	Yield per Acre in Bushels and Lbs.
	Lb.				Lbs.	Lbs.			
1st plots..	9½	Baxter's Six-rowed..	April 30..	Aug. 14..	450	200	50	Bright straw....	41 32
	9½	Carter's Prize Prolific	do 30..	do 20..	600	220½	49	do	45 45
2nd plots..	9½	Baxter's Six-rowed..	May 7..	do 14..	490	206	48½	Some rust	42 44
	9½	Carter's Prize Prolific	do 7..	do 24..	460	242½	48½	Some lodged	50 25
3rd plots..	9½	Baxter's Six-rowed..	do 14..	do 18..	445	188	47	Bright straw ; some lodged...	39 08
	9½	Carter's Prize Prolific	do 14..	do 28..	530	200	50	do	41 32
4th plots..	9½	Baxter's Six-rowed..	do 21..	do 20..	450	185	46½	Bright straw ; some lodged..	38 26
	9½	Carter's Prize Prolific	do 21..	Sept. 2..	410	172½	46	do	35 45
5th plots..	9½	Baxter's Six-rowed..	do 29..	Aug. 26..	350	157½	45	Some rust, lodged	32 39
	9½	Carter's Prize Prolific	do 29..	Sept. 8..	346	153	43½	do	31 42
6th plots..	9½	Baxter's Six-rowed..	June 5..	do 10..	320	143	44	Rust and lodged.	29 38
	9½	Carter's Prize Prolific	do 5..	do 11..	357	164	41	do	34 08

OATS.

In Plots of one-tenth of an acre each.

—	Quantity of Seed.	Names.	Date of Seeding.	Date of Harvesting.	Weight of Straw and Grain.	Total Weight of Grain.	Weight per Bushel.	Condition when Cut.	Yield per Acre in Bushels and Lbs.
	Lbs				Lbs.	Lbs.	Lbs.		
1st plots...	8½	Prize Cluster.	April 30...	Aug. 20...	457½	180	40	Bright straw	52·32
	8½	Banner.	do 30...	do 22...	675	245	35	do ..	72·02
2nd plots..	8½	Prize Cluster.	May 7...	do 22...	441	154	38½	do ..	45·10
	8½	Banner.	do 7...	do 26...	655	282½	36½	do ..	83·03
3rd plots..	8½	Prize Cluster.	do 14...	do 26...	450	185	39½	do ..	54·14
	8½	Banner.	do 14...	do 29...	750	288¾	35	do ..	84·81
4th plots..	8½	Prize Cluster.	do 21...	do 29...	515	210	40	do ..	61·26
	8½	Banner.	do 21...	Sept. 3...	425	189	36	do ..	55·20
5th plots..	8½	Prize Cluster.	do 29...	do 3...	410	168	39½	do ..	49·14
	8½	Banner.	do 29...	do 9...	427	209½	31	do ..	61·21
6th plots..	8½	Prize Cluster.	June 5...	do 9...	381	105	35	do ..	30·30
	8½	Banner.	do 5...	do 11...	402	159	26½	do ..	46·26

PLOTS FOR TESTING FERTILIZERS.

The testing of fertilizers was continued this year with oats on the same plots on as in 1889 and 1890 of one-tenth of an acre each, an explanation of which is given on page 118 of report of 1889, and on page 235 of report of 1890. A comparative statement of the results for each year is given below :—

—	Fertilizer.	Yield in 1889.	Yield in 1890.	Yield in 1891.	Yield per Acre, 1889, in Bush. and Lbs.	Yield per Acre, 1890, in Bush. and Lbs.	Yield per Acre, 1891, in Bush. and Lbs.
		Lbs.	Lbs.	Lbs.			
Plot No. 1..	Barnyard manure	80	100	96	23·18	29·14	28·08
do 2..	Mussel mud.	47	92	153	13·28	27·02	45·00
do 3..	Bone meal	54½	117	101½	16·01	34·14	29·31
do 4..	Fine ground phosphates.	44	72	102	12·32	21·06	30·
do 5..	Guano	49	76	113½	14·14	22·12	33·13
do 6..	Corn fertilizer	62	115	111	18·08	33·28	32·22
do 7..	Superphosphate of lime.	70	98	92½	20·20	28·28	27·07
do 8..	Nitrate of soda	61	128	90½	17·32	37·22	26·23
do 9..	Archibald fertilizer.	69	93	85½	20·10	27·12	25·05
do 10..	Ceres superphosphate.	68	77	74	20·00	22·22	21·26
do 11..	No fertilizer.	42	79	42½	12·12	23·08	12·17

It must be borne in mind that in 1890 1 brl. of Ceres superphosphate was applied to the whole of the plots of one-tenth of an acre each, in addition to the fertilizer applied in 1889; but no fertilizers were added in 1891.

MIXED GRAINS.

Plots of one acre each were sown with different mixtures of grain, with the results given below :—

1st acre.—With 1 bushel of oats, 1 bushel of barley, 8½ bushels of pease; sown 16th May and harvested 25th August; gave 23 bushels, weighing 48 lbs. per bushel.

2nd acre.—With 2 bushels of barley and $\frac{1}{2}$ bushel of pease; sown 16th May and harvested 25th August; gave 18 bushels, weighing $50\frac{1}{2}$ lbs. per bushel.

3rd acre.—With 2 bushels of oats and $\frac{1}{2}$ bushel of pease; sown 16th May and harvested 25th August; gave $27\frac{3}{4}$ bushels, weighing 48 lbs. per bushel.

4th acre.—With $1\frac{1}{4}$ bushels of wheat and $\frac{1}{2}$ bushel of pease; sown 28th April and harvested 7th August; gave 33 bushels per acre, weighing 60 lbs. per bushel.

5th acre.—With a dressing of 100 loads of marsh mud, and sown with 3 bushels of oats on 16th May and harvested 25th August; gave 30 bushels, weighing 39 lbs. per bushel.

6th acre.—With a dressing of 1 brl. of Imperial fertilizer; sown 16th May, with 3 bushels of oats, and harvested 24th August; gave 35 bushels, weighing 41 lbs. per bushel.

POTATOES.

Twenty-eight varieties of potatoes were planted in two rows of 66 feet in length each. The date when planted, character of tubers, and yield, are given below:—

Names.	Date of Planting.		Date of Digging.		Sound Potatoes.		Rotted Potatoes.		Character of Growth.	Total Yield per 1 Acre in Bush. and Lbs.
					Lbs.	Lbs.				
Vanguard	May	25	Sept.	22	65	16	Growth weak; tubers small; early...	148	30	
Beauty of Hebron.....	do	25	do	22	100	66	Growth weak; tubers medium; early...	304	20	
Rose's New Giant.....	do	25	do	22	115	50	Growth strong; tubers large; late...	302	30	
Halton Seedling.....	do	25	do	22	105	20	Growth medium; tubers medium; early...	229	10	
Brownell's Winner.....	do	25	do	22	101	27	Growth strong; tubers medium; late...	234	40	
Clarke's No. 1.....	do	25	do	22	190	29	Growth strong; tubers large; late...	401	30	
May Queen Early.....	do	25	do	22	72	20	Growth weak; tubers small; early...	168	40	
Early Eating.....	do	25	do	22	104	50	Growth weak; tubers small; very early...	282	20	
Chicago Market.....	do	25	do	22	44	110	Growth strong; tubers large; early...	282	20	
Early Rose.....	do	25	do	23	55	50	Growth weak; tubers small; early...	192	30	
Early Ohio.....	do	25	do	23	10	87	Growth weak; tubers small; early...	177	50	
Empire State.....	do	25	do	23	102	57	Growth strong; tubers large; late...	291	30	
Algoma.....	do	25	do	23	25	44	Growth weak; tubers small; early...	126	30	
Lee's Favorite.....	do	25	do	23	75	84	Growth weak; tubers small; early...	291	30	
Thorburn.....	do	25	do	23	71	105	Growth strong; tubers large; early...	322	40	
Early Maine.....	do	25	do	23	42	54	Growth weak; tubers small; early...	176		
White Star.....	do	25	do	23	107	69	Growth strong; tubers medium; late...	322	40	
Rural New Yorker, No. 2, $\frac{1}{2}$ plot	do	25	do	23	160	18	Growth strong; tubers large; late...			
Early Puritan.....	do	25	do	23	61	38	Growth strong; tubers large; early...	181	30	
Richter's Improved.....	do	25	do	23	71	30	Growth strong; tubers large; late...	185	10	
Stray Beauty.....	do	25	do	23	136	30	Growth strong; tubers medium; early...	304	20	
Ohio Gunner.....	do	25	do	23	28	31	Growth weak; tubers small; early...	108	10	
Rural Blush.....	do	25	do	23	166	5	Growth strong; tubers small; md. early...	313	30	
Delaware.....	do	25	do	23	63	75	Growth strong; tubers med.; md. early...	253		
London.....	do	25	do	23	80	40	Growth weak; tubers small; early...	220		
Wonder of the World.....	do	25	do	23	90	148	Growth strong; tubers medium; early...	436	20	
Burbank's Seedling.....	do	25	do	23	91	120	Growth strong; tubers medium; late...	386	50	
Great Eastern.....	do	25	do	24	45	240	Growth strong; tubers medium; late...	522	30	

CORN.

Thirty-one varieties of corn were planted in two rows, 66 feet long each. The time of planting, stages of growth, time of cutting and weights are given below. The last of May and first of June were cold, and much of the seed planted failed to germinate, and the plots had to be replanted 21 days after the first planting, or on 18th June, thus interfering very much with the results of the experiments.

Names.	Planted.	Tasselled.	Cut.	Weight per Plot.	Condition when Cut.	Weight per acre in tons and lbs.
				Lbs.		
Blunt's Prolific.....	May 28	Sept. 22	Sept. 25 & 26	335	Early milk.....	18·850
Golden Dent.....	do 28	do 24	do 25 & 26	350	Ears just forming.....	19·500
Chester Co. Mammoth.....	do 28	do 24	do 25 & 26	375	Ears not formed.....	20·1250
Virginia Horse Tooth.....	do 28	do 25	do 25 & 26	325	do.....	17·1750
Golden Beauty.....	do 28	do 25	do 25 & 26	340	do.....	18·1400
Red Cob Ensilage.....	do 28	do 23	do 25 & 26	330	Ears forming.....	18·300
Mammoth Southern Sweet.....	do 28	do 4	do 25 & 26	300	Soft glazed.....	16·1000
Giant Prolific Ensilage.....	do 28	do 26	do 25 & 26	420	Ears not formed.....	23·200
Salzer's Fodder.....	do 28	do 23	do 25 & 26	350	Early milk.....	19·500
King Philip.....	do 28	do 24	do 25 & 26	290	do.....	15·1900
Longfellow.....	do 28	do 22	do 25 & 26	360	do.....	19·1600
Long White Flint.....	do 28	do 21	do 25 & 26	300	do.....	16·1000
Long Yellow Flint.....	do 28	do 26	do 25 & 26	355	do.....	19·1050
Thoroughbred White Flint.....	do 28	do 30	do 25 & 26	445	do.....	24·950
Canada Yellow.....	do 28	do 24	do 25 & 29	340	do.....	18·1400
Pearce's Prolific.....	do 28	Aug. 16	do 25 & 26	430	Glazed.....	23·1300
Mitchell's Early.....	do 28	do 9	do 25 & 26	200	Hard glazed.....	11
Red Blazed.....	do 28	do 15	do 25 & 26	250	Glazed.....	13·1500
White Flint (Dakota).....	do 28	do 14	do 25 & 26	300	do.....	16·1000
Yellow Flint.....	do 28	do 14	do 25 & 26	295	do.....	16·450
North Dakota.....	do 28	do 14	do 25 & 26	335	do.....	18·850
Dakota Gold Coin.....	do 28	do 21	do 25 & 26	270	do.....	14·1700
Eight-rowed Sugar.....	do 28	do 26	do 25 & 26	400	do.....	22
Egyptian.....	do 28	Sept. 4	do 25 & 26	395	Early milk.....	21·1450
Extra Early Cory.....	do 28	Aug. 10	do 25 & 26	155	Hard glazed.....	8·1050
Pee and Kay.....	do 28	do 20	do 25 & 26	310	Glazed.....	17·100
Early Mammoth.....	do 28	Sept. 4	do 25 & 26	380	Early milk.....	20·1800
Asylum Sweet.....	do 28	Aug. 26	do 25 & 26	375	Tasseling.....	20·1250
Potter's Excelsior.....	do 28	do 26	do 25 & 26	305	do.....	16·1550
Stowell's Evergreen.....	do 28	Sept. 5	do 25 & 26	350	Early milk.....	19·500
Cinquantine.....	do 28	Aug. 20	do 25 & 26	135	Glazed.....	7·850
N. S. Yellow.....	do 28	do 10	do 25 & 26	210	Hard glazed.....	11·1100

This corn, together with $2\frac{1}{2}$ acres of a mixture of different varieties, was converted into about 36 tons of ensilage.

GRASSES.

The following grasses were sown on 8th and 9th May in small plots, and appear, up to the present time, to be hardy and suitable to our climate, but it is uncertain as to what the result of the changeable weather of our climate during the winter months will have upon them :—

Names.

Western Bunch Grass,	Southern Brome Grass,
Mexican Brome Grass,	Hard Fescue,
Fringed do	Meadow Fescue,
Western do	Tall Fescue,
Wild Timothy,	Orchard Grass,
Satin Grass,	Perennial Rye Grass,
Switch Grass,	Italian Rye Grass,
Reed Canary Grass,	Crested Dog's Tail,
Timothy from Calgary,	Red Top,
Late Meadow Grass,	Meadow Fox Tail,
Austrian Brome Grass,	

MANGELS.

Fifteen plots of mangels were sown on 26th May, consisting of three rows 66 feet long of each kind. Duplicate plots of the same size and same varieties were also sown on 9th June.

A table is given below of the results.

The first series of plots was sown on the 26th of May and pulled on the 12th and 13th of October. The second series was sown on the 9th of June and pulled 22nd October.

MANGELS.

Name.	1st plot. Sown 26th May, pulled 12th October.			2nd plot. Sown 9th June, pulled 22nd October.		
	Yield in lbs.	Yield per acre in tons and lbs.	Yield per acre in bush. and lbs.	Yield in lbs.	Yield per acre in tons and lbs.	Yield per acre in bush. and lbs.
Mammoth Long Red.....	510	22·880	748·	630	27·1440	924·
Giant Yellow Globe.....	440	19·720	645·20	625	27·1000	916·40
Mammoth Long Red (Steele).....	575	25·600	843·20	610	26·1680	894·40
New Giant Intermediate (Steele).....	650	28·1200	953·20	675	29·1400	990·
Mammoth Long Red (Simmers).....	565	24·1720	828·40	620	27·560	909·20
New Giant Yellow Globe (Bruce).....	760	33·880	1114·40	510	22·880	748·
Carter's Warden Orange Globe.....	450	19·1600	660·	560	24·1280	821·20
Gate Post (Bruce).....	590	25·1920	865·20	625	27·1000	916·40
Canada Giant (Pearce).....	260	11·880	381·20	580	25·1040	850·40
Mammoth Long Red (Webb).....	425	18·1400	623·20	405	17·1640	594·
Champion Yellow Globe.....	310	13·1280	454·40	560	24·1280	821·20
Yellow Fleshed Tankard.....	290	12·1520	425·20	430	18·1840	630·40
Mammoth Long Red (Evans).....	460	20·480	674·40	460	20·480	674·40
Golden Tankard.....	400	17·1200	586·40	445	19·1160	652·40
Crimson Tankard.....	475	20·1800	696·40	480	21·240	704·

TURNIPS.

Fourteen varieties of turnips were sown on 26th May, consisting of three rows, 2½ feet apart and 66 feet in length, of each kind. Duplicate plots of the same size and same varieties were also sown on 9th June. A table of the results is given below.

Name.	1st plot. Sown 26th May, pulled 26th October.			2nd plot. Sown 9th June, pulled 26th October.		
	Yield in lbs.	Yield per acre in tons and lbs.	Yield per acre in bush. and lbs.	Yield in lbs.	Yield per acre in tons and lbs.	Yield per acre in bush. and lbs.
Purple-top Swede (Rennie).....	575	25·600	843·20	540	23·1520	792·
Carter's Elephant Swede.....	550	24·400	806·40	515	22·1320	755·20
Skirving's (Steele).....	520	22·1760	762·40	555	24·840	814·
Elephant Swede (Steele).....	615	27·120	902·	560	24·1280	821·20
Selected Purple-top (Steele).....	575	25·600	843·20	535	23·1080	784·40
Bangholm (Simmers).....	580	25·1040	850·40	605	26·1240	887·20
Highland Prize (Simmers).....	590	25·1920	865·20	535	23·1080	784·40
Marquis of Lorne (Bruce).....	590	25·1920	865·20	525	23·200	770·
Hartley's Bronze (Pearce).....	550	24·400	806·40	555	24·840	814·
Imperial (Webb).....	575	25·600	843·20	595	26·360	872·40
New Giant King (Webb).....	605	26·1240	887·20	610	26·1680	894·40
Mammoth Purple-top (Evans).....	590	25·1920	865·20	500	20·	666·40
Clyde Improved.....	595	26·360	872·40	590	25·1920	865·20
Monarch Swede (Pearce).....	545	23·1960	799·20	550	24·400	806·40

CARROTS.

Fourteen varieties of carrots were sown on 26th May, consisting of three rows, 18 in. apart and 66 feet in length, of each kind. Duplicate plots of the same size and same varieties were also sown on 9th June. Below is a statement of the results :

Name.	1st plot. Sown 26th May, pulled 19th October.			2nd plot. Sown 26th May, pulled 22nd October.		
	Yield in lbs.	Yield per acre in tons and lbs.	Yield per acre in bush. and lbs.	Yield in lbs.	Yield per acre in tons and lbs.	Yield per acre in bush. and lbs.
Giant Sht. White Vosges (Rennie).....	400	29·666	977·46	245	17·1933	598·53
Half Long Scarlet Luc (Rennie).....	350	25·1333	855·33	300	22·	733·20
Early Gen.....	410	30·133	1002·13	280	20·1066	684·26
Mammoth Intermediate White (Rennie).....	370	27·266	904·26	310	22·1466	757·46
Improved Short White (Steele).....	450	33·	1100·	240	17·1200	586·40
Guerande or Ox Heart (Steele).....	310	22·1466	757·46	320	23·933	782·13
Large White Vosges (Simmers).....	390	28·1200	953·20	295	21·1266	721·06
Chantenay (Bruce).....	345	25·600	843·20	385	28·466	941·06
Large White Vosges (Bruce).....	275	20·333	672·13	255	18·1400	623·20
Green-top Orthe (Pearce).....	345	25·600	843·20	300	22·	733·20
James Intermediate (Pearce).....	280	20·1066	684·26	200	14·1333	488·53
Mitchell's Perfection (Pearce).....	180	13·400	440·	220	16·266	537·46
Scarlet Altringham (Webb).....	200	14·1333	488·53	205	15·066	501·06
Yellow Intermediate (Webb).....	345	25·600	843·20	210	15·800	513·20

GENERAL STATEMENT OF CROPS.

In addition to the hay already referred to, there were in all about 70 acres under crop in 1891. The total yield of grain was 1,158 bushels. Five and a-half acres of roots, chiefly turnips, gave 4,400 bushels, and from three acres of corn 36 tons of ensilage was prepared. There were about four acres devoted to the growing of green crops for summer use for stock, and about as much more in fruits and as plots of grasses.

Eight acres of land were drained this year, making in all over 60 acres of the farm now well drained. All the drains are giving good satisfaction.

BUILDINGS.

Some of the old buildings have been removed this year, which has improved the appearance of the surroundings, and as soon as the necessary buildings for storing carts, waggons and farm implements are built the other old buildings now used for store rooms can be removed.

ROADS.

Road-making has been carried on during the year as time from other work would permit. The roads have all been made with broken stone, and are firm and lasting.

WATER SUPPLY.

Some 900 feet of galvanized iron $1\frac{1}{2}$ -in. water pipe has been laid. But owing to the lateness of the season before the work was commenced, it was found impossible to continue farther. A connection was made at this point with one of the main drains, which so far has given us a supply of good water in the barnyard, and unless we have some very dry, cold weather there will be sufficient for the stock until the dry weather of next spring or summer, when the balance of the pipe can be laid to a permanent supply further back on the Farm.

CATTLE.

The cattle bought last year for fattening purposes were sold in the spring for the St. John, N.B., market.

Experiments are being conducted this year with fattening steers. I may say that with few exceptions the cattle will eat turnips more readily than they will ensilage, and in making the selection the steers that appear to relish the ensilage the best were chosen to feed with that ration. The thoroughbred cattle bought last year have done well; we have several calves from them. When making a selection of cattle this autumn for fattening purposes 7 head of thoroughbred Short Horn females were offered for about the price of good grades, and concluding that it would be a prudent investment the offer was accepted. One of the cows has since dropped a fine bull calf, and they are all doing so well that I would suggest the propriety of keeping them for breeding purposes.

ORNAMENTAL TREES AND SHRUBBERY.

The work of planting trees and shrubbery for the double purpose of ornament and protection from winds was carried on this year; wind-breaks were planted along part of the north and south lines of the farm. A row of American elm was planted on each side of the main road that crosses the Farm, and clumps of trees and shrubbery at different points where needed, which, when grown, will be a source of pleasure as well as a protection to the crops and plants.

FRUIT TREES.

The orchard that was planted in 1890 came through the winter well. The trees have made a fair growth during the past summer. The plums and pears trees have not succeeded as well as the apple trees.

The trunks and larger limbs of the trees were washed in the spring with a solution made of soap and washing soda, which gave the bark a clear, bright green appearance. The Longfield, Wagener, Haas, Scott's Winter and Maiden's Blush had a few apples this year. Preparations are about completed to extend the orchard to 12 acres during the coming spring. For this purpose, in addition to the orchard now already begun, a field of 5 acres has been prepared by chopping down and burning the second growth of timber, care being taken to leave a heavy shelter belt of trees on every side for protection. On this plot a few trees were planted last spring. The land will be levelled as soon as the stumps are sufficiently rotted to be easily taken out. The soil immediately around the trees will be kept cultivated from the first.

SMALL FRUITS.

Strawberries.—These were badly winter-killed by the sudden and frequent changes from rain and mud to extreme cold during the winter. Raspberries and blackberries stand the climate well, and make strong growth and have fruited well. The Houghton, Downing and Smith's Improved gooseberries did well, and as usual fruited heavily. The red and white currants have not so far succeeded well here, while black currants are hardy and heavy croppers.

MEETINGS ATTENDED.

I attended a meeting of the Nova Scotia Dairymen's Association at New Glasgow on 25th and 26th March, as well as several meetings of farmers in Colchester, Cumberland and Westmoreland counties during the year.

EXHIBITIONS.

Some of the products of the Farm were exhibited at Charlottetown, P.E.I., exhibition, which was held on 6th, 7th, 8th and 9th October.

The exhibits consisted of 127 samples of grains and grasses in straw and 72 samples of grain in glass bottles, and 50 samples of potatoes. The latter were distributed at the close of the exhibition to those present.

Two hundred and eighty packages of grain and potatoes were distributed from here during the year, and some very satisfactory reports have been received from the parties who obtained the seed.

I have the honour to be, Sir,

Your obedient servant,

W. M. BLAIR,

Superintendent.

EXPERIMENTAL FARM FOR MANITOBA.

REPORT OF S. A. BEDFORD, SUPERINTENDENT.

BRANDON, MAN., 31st December, 1891.

TO WM. SAUNDERS, Esq.,
Director Dominion Experimental Farms,
Ottawa.

SIR,—I have the honour to submit herewith my fourth annual report of the work done on the Manitoba Experimental Farm.

The past year has been a remarkable one from an agricultural standpoint. Spring opened up at about the usual time and by the first week in April seeding was general throughout the province. Through April the weather was unusually warm for that month and vegetation made an early and rapid growth, only to be checked by the severe frost of the middle of May, and in some instances where the grain plant was exposed by the spring winds the injury was severe and made re-sowing necessary. During the last three weeks of June abundant rain fell, and this month was quite favourable for all kinds of vegetation. The temperature during July was much below the average; this helped to fill the heads of wheat, but the number of cloudy, cool days encouraged a rank growth of straw and delayed ripening very much.

On the 6th of August a very heavy rain storm, accompanied by wind, passed over the centre and eastern parts of the province. This storm was of unusual severity, and next morning every acre of crop on this farm was perfectly flat. The effect of the storm was noticeable all through the balance of the season; the sun and wind being unable to penetrate through the lodged and matted grain, ripening was delayed and rust encouraged. The early part of August was warm, but on the 21st the wind veered to the north-west and the temperature dropped very suddenly to one below freezing. As the lowest reading of the thermometers on the experimental farm only recorded one degree of frost, I think no injury was done at that time, but on the 26th of the same month another drop occurred registering two degrees of frost on the uplands and seven degrees in the valley, and at this time all the uncut grain was more or less injured according to its stage of ripeness.

A field of Ladoga growing on the side hill was cut on the 13th of August, thirteen days before severe frost, and was of course uninjured.

A number of varieties of wheat growing on the upland were also cut before the 26th and were also free of injury from frost. Although a number of varieties of wheat grown on this farm have been somewhat injured by frost, you will notice that the yield has in all cases been fair and in many instances very large. The same remark might apply to this province generally, for although the injury by frost has been considerable the yield is much better than usual.

WHEAT.

In view of the importance of the wheat crop in this province and the general anxiety to obtain an early ripening variety, all plots of this grain were duplicated one set of plots being sown in the valley on strong loamy soil and the other set on higher and lighter land.

A number of the varieties sown on the upland were badly injured by wind storms in May; and the returns being inaccurate, are not given. It is worthy of notice that the uninjured plots were saved by a very slight protection of scrub on the south and west; this scrub was only from 6 to 12 feet high, but effectually

protected the grain during the most severe storms, while the grain on the unprotected portion of the field was bared to the roots and severely injured, and in some cases killed outright.

A noticeable feature in these plots is the very slight difference in time between the ripening of the different varieties; as none were injured by frost all ripened fully, and were cut at the same degree of ripeness; the dates given are therefore accurate. All the varieties in these plots were cut before frost and were quite free from rust, smut, &c., and both grain and straw were as nearly perfect as possible, the light character of the soil just suiting the past season.

WHEATS sown on Upland Prairie, summer fallowed; size of plots, one-fifth acre, sown with Press Drill, 6 pecks per acre; soil, light sandy loam.

Variety.	Sown.	Headed.	Ripe.	Maturing.	Yield per Acre.		Weight per Bushel.
					No. days.	Bush. Lbs.	
Red Fife.....	April 8...	July 22...	Aug. 19...	133	52	55	61½
Old Red River.....	do 8...	do 9...	do 18...	132	47	35	61
Pringle's Champlain.....	do 8...	do 6...	do 18...	132	44	55	61½
Campbell's White Chaff.....	do 8...	do 4...	do 17...	131	43	45	60½
Chilian White.....	do 8...	do 3...	do 19...	133	43	..	60
Wellman's Fife.....	do 8...	do 5...	do 20...	134	28	10	60

UPLAND Prairie; plots one-tenth of an acre; very light loam soil.

Variety.	Sown.	Headed.	Ripe.	Maturing.	Yield per Acre.		Weight per Bushel.
					No. days.	Bush. Lbs.	
Red Fife.....	April 8...	July 5...	Aug. 19...	133	45	5	61½
Green Mountain.....	do 8...	do 13...	do 20...	134	42	20	61½
Hungarian Mountain.....	do 8...	do 10...	do 19...	133	42	..	62
Assiniboine.....	do 8...	do 5...	do 19...	133	38	10	60½
Hard Calcutta.....	do 8...	June 30...	do 15...	129	30	20	61

Below will be found a list of wheats grown in the valley on clay loam, a soil not well adapted for a season like the last. It will be noticed by the weight of the grain that all suffered more or less from frost and many of them from rust as well. The heavy storm of 6th August badly lodged some of the varieties; this greatly encouraged rust. Owing to frost the exact date of ripening of some of the varieties could not be obtained and are only given as approximate. In view of the fact that wheat holds such an important place in the products of the country, and that so much attention has been drawn to the importance of securing early-ripening varieties, it has been thought advisable to give full notes of a few of the leading varieties.

Unfrozen Red Fife is no doubt the standard variety in this province, for both quality and productiveness; and if it were only a week or ten days earlier it would be almost impossible to improve on it, but it is certainly later by some days than many other sorts.

White Fife.—This excellent white wheat is being increasingly grown in the province. Its freedom from smut and rust, and the fact of it not readily showing the effect of a slight frost, have all tended to increase its cultivation; it matures with and yields about the same as Red Fife.

White Connell is very much like the White Fife, and may be only an improved strain of that variety. It is generally very productive, with bright strong straw, free of rust, and is not inclined to smut. It is like the White Fife in not readily showing the effects of a slight frost. We have reports from farmers of large yields from seed of this variety supplied by the Experimental Farm.

Red Fern or Eureka is a hard red-bearded wheat, generally maturing from four to six days earlier than Red Fife; being a very dark wheat it shows the effects of even a slight frost very quickly.

Saxonka is a Russian bearded wheat four to seven days earlier than Red Fife, and very vigorous generally, but rusted badly on the low land this year.

Golden Drop is a square-headed, bald wheat, much softer than Red Fife, but three to six days earlier, but scarcely as productive. This wheat was much sought after in this province 15 years ago, but is too soft for present markets.

Defiance is a red bald wheat, very similar to the Red Fife, but with us very little earlier.

Ladoga has done remarkably well on this farm, when grown on high well drained land, a seven-acre field of this character the past season yielding 33 bushels of No. 1 wheat, weighing 60 lbs. per bushel, and ripening 13th August, or 13 days before frost, but the valley evidently does not suit it so well, the yield there being small and the grain frozen. On high, well-drained land it is certainly from seven to ten days earlier than Red Fife, but not quite so productive.

Indian Hard Calcutta.—This, like all Indian wheats, is short in the straw and early to ripen. It is not generally very productive and suffered badly by rust during the past season. It is bearded.

Gehun.—Another Indian wheat, but bald, with very short stiff straw. It matures early and was very productive at Indian Head last year, but has rusted both here and at Indian Head this season.

Campbell's White Chaff is a large-headed bald wheat, with about one-third of the grains hard; balance soft; evidently it is hardening here; it is a few days earlier than Red Fife and fairly productive; not thoroughly tested here yet.

WHEAT.

Variety.	Sown.	Harvested	Matured in.	Yield per Acre.	Weight per Bushel.	Character of Straw.	Rust.	Length of Straw.	Length of Head.
			Days.	Bsh. Lbs.	Lbs.			Inch.	Inch.
Rio Grande.	April 13..	Aug. 31..	140	36 10	55	Weak ..	Blade only..	51	4½
Pringle's Champlain ..	do 13..	do 30..	139	34 40	54½	Fair	do ..	52	3½
White Connell.	do 13..	Sept. 1..	141	34 30	53½	do	do ..	50	3
Defiance	do 13..	do 1..	141	34 10	54½	Weak ..	do ..	51	3¼
Saxonka	do 13..	Aug. 24..	133	33 50	54	Lodged. Badly		46	3
Red Fern or Eureka...	do 13..	do 31..	140	32 30	55	do .. Slight		50	3½
Judket,	do 13..	Sept. 2..	142	32 20	54	do .. Blade only..		50	3
Russian Hard Tag....	do 13..	Aug. 27..	136	32 10	58½	do .. do ..		48	3
Red Fife	do 13..	Sept. 2..	142	29 40	47½	do .. do ..		52	3
White Fife.....	do 13..	do 1..	141	29 10	50	do .. do ..		51	3
Gehun	do 13..	Aug. 22..	131	29 10	57½	Strong.. Very badly..		36	2½
Indian Hard Calcutta.	do 13..	do 25..	134	27 20	54	Lodged. Badly		47	3
Ladoga	do 13..	do 26..	135	22 30	49¾	Fair Partly		52	3
Colorado	do 13..	do 27..	136	20 30	47	Lodged. Very badly..		48	3
Australian	do 13..	do 26..	135	15 50	47¼	Strong.. do ..		36	2½

NOTE.—Red Fife, White Fife and Ladoga slightly injured by winds.

TEST OF SOME NEW WHEATS

Some of the following varieties of wheat were received late and were sown separate from the above series on back-setting. For a comparison Red Fife was sown in the centre plot

Blue Stem, a variety grown extensively in South Dakota and Minnesota, is a handsome plant with a blueish tinted straw and velvet chaff. It is very productive, but it is no earlier than Red Fife, and the grain is softer. The very light weight of the Delhi and Kent wheat was, no doubt, caused by rust.

Variety.	Sown.	Headed.	Harvested.	Matured in.	Yield per Acre.	Weight per Bushel.	Remarks.
				Days.	Bush. lbs.	Lbs.	
Blue Stem.....	April 18....	July 17....	Sept. 2....	137	36 25	52	No rust.
French Imperial.....	do 18....	do 14....	Aug. 28....	132	32 30	54	Some rust.
Red Fife.....	do 18....	do 17....	Sept. 2....	137	33 45	54	No rust.
Waugh's Delhi.....	do 18....	do 17....	Aug. 24....	128	28 00	50½	Some rust.
Kent Wheat.....	do 18....	do 19....	do 25....	129	22 20	51½	Rust'd badly

WHEAT—ONE-ACRE PLOTS.

Variety.	Sown.	Harvested	Matured in.	Yield per Acre.	Weight per Bushel.	Character of Straw.	Rust.	Length of Straw.	Length of Head.
			Days.	Bush. lbs.	Lbs.			Inch.	Inch.
Old Red River.....	April 10....	Aug. 31....	143	35 45	55½	Fair....	Slight.....	48	3
Red Fife.....	do 10....	Sept. 1....	144	35 30	52	do	do	50	3
Ladoga.....	do 10....	Aug. 25....	137	25 45	53½	do	do	53	2½
Golden Drop....	do 10....	do 29....	141	21 35	50	do	Straw rusted	48	5½
Australian.....	do 10....	do 29....	141	14 31	46	Weak..	Very badly.	49	3½

TEST OF CUTTING WHEAT AT DIFFERENT STAGES OF RIPENESS.

During the past four or five years the practice of cutting wheat more or less green has grown rapidly in this country, until at the present time there is scarcely a farmer who does not practice it to a greater or less extent. When cut at a too early stage the berry is much shrivelled and the yield reduced. To determine the extent of this reduction the following experiments were undertaken:—

Three adjoining plots were sown at the same time with Red Fife and cut at three different dates; the first two cuttings escaped the frost, but the grain was much shrivelled, especially from the first cutting. It will be seen by the following tables that in spite of the shrivelled appearance of the sample cut on the 24th of August it brought the highest price per bushel and yielded the most money per acre. It is almost unnecessary to explain that if the sample cut in September had escaped the frost the result would have been quite different; it would then have brought 75 cents per bushel, or \$23.50 per acre.

Variety.	Cut.	Colour of Straw when Cut.	Stage when Cut.	Yield per Acre.	Weight per bsh.	Value per bsh.	Value per Acre.
				Bush. lbs.	Lbs.	Cts.	\$ cts.
Red Fife.....	Aug. 19....	Very green....	In early milk.....	21 20	50½	42	8 96
do	do 24....	Green.....	In late milk	28 00	54½	54	15 12
do	Sept. 6....	Ripe.....	Cured, but frosted.	31 20	53½	35	10 96

TEST OF "DISC HARROW" CULTIVATION AGAINST "SPRING PLOUGHING."

During 1890 the different forms of disc harrows were largely used in preparing the seed bed for the different varieties of grain, also in some cases for covering the seed.

The reports concerning the success of this plan were very conflicting, some claiming that the shallow cultivation with the disc harrow hastened maturity; the work was done at a greatly reduced cost, and was equally efficacious in keeping the weeds in check, and the yield nearly if not quite as heavy as on ploughed land.

Others contend that disc harrow cultivation had nothing to recommend it in the way of hastening maturity, and that it greatly encouraged weeds, particularly couch grass.

To test the question on this farm four half-acre plots were selected in the higher portion of the valley; soil a rich sandy loam. The field was summer-fallowed in 1889 and sown to wheat in 1890. The plots were uniform and the test satisfactory.

On the 17th of last April each plot was sown with Red Fife at the rate of seven pecks per acre.

It will be seen by the following table that the spring ploughing not only gave the best returns, but matured earlier and was freer from weeds. The sample of wheat was equally good, being No. 2 hard from all the plots.

It was also noticeable that the disc-harrowed plots had a large number of short-strawed plants with poor heads, while the plants in the spring-ploughed plots were all equally vigorous and the heads all well developed.

Method of Cultivation.	Harvested.	Yield.	
		Bush.	Lbs.
Plot No. 1.— <i>Ploughed in spring</i> , harrowed with flat harrow and drilled; no weeds.	Aug. 25..	44	34
do 2.— <i>Stubble burnt off</i> ; wheat <i>drilled in</i> and harrowed with flat harrows; some weeds.....	do 26....	40	00
do 3.— <i>Stubble burnt off</i> ; wheat "Cuttaway Disc" harrowed in; quite weedy	do 27....	39	12
do 4.— <i>Stubble not burnt off</i> ; wheat "Cuttaway Disc" harrowed in; quite weedy.....	do 27....	31	08

ONE OR TWO PLOUGHINGS FOR FALLOW.

A great difference of opinion exists regarding the proper treatment of summer fallow for wheats. To test this matter three adjoining plots, each one acre in area, were selected.

Plot No. 1 was ploughed once on 26th June, and the weeds kept down the balance of the season by means of the common and disc harrows.

Plot No. 2 was ploughed once on 26th July, and the after cultivation was the same as No. 1.

Plot No. 3 received one ploughing on 26th June and another on 1st August, and one harrowing afterwards.

Appended will be found the returns from each plot:

Variety.	How treated.	Sown.	Harvested	Yield per Acre.	
				Bush.	Lbs.
Red Fife.	Ploughed once, 26th June.....	April 16..	Aug. 30..	30	41
do	Ploughed once, 26th July.....	do ..	do ..	25	46
do	Ploughed on 26th June and 1st August.....	do ..	do ..	27	57

SMUT.

Both farmers and grain-buyers report that smut is largely on the increase throughout the province, and that the direct loss to the farmer this year will reach thousands of dollars, besides the indirect loss arising from injury to the reputation of our wheats on the English markets.

In 1890 a number of experiments with bluestone and other preparations for killing smut were made and carried out successfully. Last spring these experiments were repeated, but owing to a wind storm in May the test was spoilt. This was disappointing, as additional experience on this subject would be valuable just now.

The question being a very important one, it was thought advisable to insert in this report a description of last years experiments as given in the 1890 report.

Four adjoining plots were set apart for this purpose. Plot No. 1 was sown with wheat not treated. Plot No. 2 was sown with wheat treated with bluestone—1 lb. of bluestone being dissolved in a pail of hot water, and applied to ten bushels of wheat, which was then left to soak for three hours. Plot No. 3 was treated with a salt brine sufficiently strong to float an egg, the seed being soaked in the brine three hours and then dried. Plot No. 4 was treated by the Jensen or hot-water method; the seed, placed in a gunny sack, was immersed in water heated to a temperature of 130 degrees, Fah., then removed to another boiler of water heated to 132 deg. and soaked in the latter for 15 minutes.

All were in adjoining plots and received similar treatment during growth and harvesting; when ripe 200 heads were taken from each plot and examined. Plot No. 1, or untreated, gave 6 per cent of smutty heads. Plot No. 4, or scalded, gave 1 per cent of smutty heads, while none of the 200 heads from the plots Nos. 2 and 3, (the bluestoned and salted) were smutty.

After threshing, the grain was again examined, and the bluestoned gave two smut balls to the thousand grains of wheat, the salted gave three and the scalded five, while the untreated gave 29.

These results would point to the conclusion that none of these methods can be depended upon to completely destroy the spores in badly smutted seed, but the bluestone treatment was one of the most successful; its application requires the least labour and leaves the seed in the best condition for sowing. Below will be found the yield and other particulars of this experiment.

Variety.	Sown.	Came up.	Headed.	Ripened	Yield per Acre.	Smutty Head.	Smut Balls in Grain.	Matured in.
					Bush. Lbs.			Days.
Red Fife, Untreated	April 23	May 9.	July 10.	Aug. 22.	23 18	6½ per c.	29 per 1,000	121
do Bluestoned	do 23	do 9.	do 10.	do 22.	25 11	None.	2 do	121
do Salted	do 23	do 9.	do 11.	do 22.	22 9	do	3 do	121
do Scalded	do 23	do 9.	do 9.	do 22.	23 44	1 per c.	5 do	121

EXPERIMENTS WITH OATS.

The past season has been an exceptionally good one for oats, the yield throughout the province being much heavier than usual, but the weight per bushel is every where under the average; this is no doubt owing to the excessive and soft growth made during June and July. There was also much rust on oats grown on strong land, no doubt from the same cause, coupled with cloudy weather in July.

English White Oats have again given the largest yields, but they are this year much lighter in weight than usual.

Prize Cluster had the brightest straw and Early Race Horse gave the best sample of grain.

Among the earliest to ripen this season were Welcome, Early Race Horse, Winter Grey, Prize Cluster and Archangel.

Excellent reports have been received from farmers supplied with Black Tartarian seed, but this variety has not succeeded as well as usual on this farm.

TEST OF VARIETIES OF OATS.

Grown on summer fallow; soil, rich black loam; sown with 9 pecks seed, Press drill. Size of plots, one acre.

Variety.	Sown.	Headed.	Harvested.	Matured in	Yield, 1891, per Acre.	Lbs. per Bush.	Yield, 1890.	Quality of Straw.	Rust.
					Bush. Lbs.	Lbs.	Bush. Lbs.		
English White ...	May 8..	July 28.	Aug. 29.	113 days	83 05	34½	83 12	Fair ...	Slight.
Banner	do 8..	do 29.	Sept. 3.	118 do	81 33	.....	73 18	do ...	do
Early Race Horse.	do 6..	do 22.	Aug. 22.	108 do	77 08	40½	51 00	do ...	do
White Russian...	do 6..	do 29.	Sept. 1.	118 do	74 14	36	73 04	Weak ..	Considerable.
Early Blossom...	do 6..	do 30.	do 4.	121 do	74 09	34	82 32	do ...	do
Early Archangel...	do 7..	do 21.	Aug. 25.	110 do	72 29	40	60 24	Fair ...	Slight.
Welcome	do 6..	do 23.	do 22.	108 do	72 27	40	72 00	do ...	do
Holstein Prolific	do 7..	do 28.	Sept. 5.	121 do	70 26	34	72 24	Strong..	do
Black Champion ..	do 6..	do 30.	do 5.	122 do	69 09	37	74 04	Weak ..	Considerable.
Giant Swedish...	do 7..	do 31.	do 9.	125 do	68 30	31	56 24	Strong..	do
Glenrothern	do 6..	do 31.	do 5.	122 do	67 25	.....	77 04	do ...	Slight.
Black Tartarian...	do 6..	do 29.	do 5.	122 do	66 28	35½	78 22	Fair ...	do
Winter Grey	do 6..	do 21.	Aug. 22.	108 do	66 26	39	69 25	do ...	do
Prize Cluster	do 8..	do 27.	do 26.	110 do	66 08	39	54 14	Weak ..	None.
American Triumph	do 7..	do 31.	Sept. 7.	123 do	64 02	.....	69 10	Strong..	Slight.
Australian	do 8..	do 29.	do 4.	119 do	59 26	.....	72 02	Weak ..	Considerable.

EXPERIMENTS WITH BARLEY.

Two series of plots were sown with barley, one on light loam and the other on heavier land. The varieties sown on light loam were injured so badly by wind in May that the returns would be misleading and are not given.

The following varieties were sown on half and three-quarter acre plots on back-setting; soil, strong clay loam; nearly all were more or less lodged and the colour and plumpness of the samples somewhat injured.

California Prolific well deserves its name and is a very promising variety; the head is very similar to the two-rowed Duckbill, and like it has good stiff straw.

Webb's Kinver Chevalier is a very promising variety from England, where it has taken the lead as a malting barley for some years; it had the stiffest straw of any of the Chevalier sorts sown.

Odessa Six-rowed is again much more prolific than the Rennie's Six-rowed.

All were sown with the Press drill, at the rate of 7 pecks per acre.

VARIETIES OF BARLEY.

Sown on clay loam soil, backsetting, with Press drill, 7 pecks per acre; size of plots, $\frac{1}{2}$ and $\frac{3}{4}$ acre.

Variety.	Sown.	Headed.	Harvested	Yield per Acre.		Weight per Bushel.
				Bush.	Lbs.	
Prize Prolific	April 23..	July 15..	Aug. 19..	75	34	50 $\frac{1}{2}$
Two-rowed Duckbill.....	do ..	do 8..	do 14..	75	10	52 $\frac{1}{2}$
California Prolific.....	do ..	do 9..	do 14..	68	47	50 $\frac{1}{2}$
Danish Chevalier.....	do ..	do 15..	do 19..	68	16	52
Odessa Six-rowed.....	do ..	do 2..	do 12..	66	14	53
Webb's Chevalier.....	do ..	do 8..	do 18..	61	17	52 $\frac{1}{2}$
Goldthorpe.....	do ..	do 16..	do 18..	65	21	50
Beardless.....	do ..	do 16..	do 18..	58	34	50 $\frac{1}{2}$
Rennie's Six-rowed.....	do ..	do 6..	do 12..	56	39	48
Two-rowed Naked	do ..	do 5..	do 16..	50	18	60

FALL AND SPRING PLOUGHING.

A test of the comparative merits of fall and spring ploughing for wheat and oats was made on the higher portions of the farm. The plots were one-half acre each; soil, a light gravelly loam. The previous crop was wheat on back-setting.

It will be seen from the following tables that fall ploughing has given the best results with both wheat and oats. This is an unexpected result and should not be acted upon until the experiment has been repeated a number of times. It is quite evident that the time of ploughing for, and the manner of sowing oats, largely affect the date of ripening. This was noticeable all through the experiment. Good results have been obtained during the past season by sowing oats a few hours after ploughing, before the soil has time to become dry. Further experiments on this line are needed, for it is thought that much loss is sustained in the drying out of the seed bed by the ordinary method, and the ploughing in of the seed apparently delays ripening.

Fall and spring ploughing. Soil, light gravelly loam; size of plots, one-half acre each.

Variety.	Sown.	Harvested.	Yield per Acre.	
WHEAT.			Bush.	Lbs.
Red Fife, ploughed in spring and sown with Press drill.	April 18.....	August 20.....	20	08
do in fall do ..	do 18.....	do 20.....	27	28
OATS.				
Black Tartarian, ploughed in spring, sown with Press drill	April 20.....	August 22.....	55	22
do ploughed in fall do ..	do 20	do 16.....	59	07
do sown broadcast and ploughed in.....	do 20.....	do 30	48	13

TEST OF DRILLS.

Arrangements were made to continue the test of drills begun two years ago, and nine plots were set apart for this purpose, but the late spring frost severely injured the oats, and the returns from that grain being inaccurate, are not given.

Below will be found particulars of this year's experiment; also the returns of a similar test for 1890. It will be noticed that this year's results confirm those of last year, and it is quite evident that on land similar to that of this farm drill sowing has a decided advantage over broadcasting.

TEST of Drills with Wheat and Barley on summer fallow; soil, clay loam.

WHEAT.

Method of Sowing.	Sown.	Sown per Acre.	Headed.	Harvested	Yield per Acre, 1891.		Yield per Acre, 1890.	
					Bush.	lbs.	Bush.	lbs.
Common drill.....	April 15..	7 pecks...	July 24...	Sept. 2...	33	20	30	24
Press drill.....	do 15..	6 do ...	do 24...	do 2...	28	50	29	31
Broadcast machine.....	do 15..	8 do ...	do 29...	do 5...	22	10	28	20

BARLEY.

Press drill.....	April 24..	6 pecks...	July 16...	Aug. 19..	55	10	60	14
Common drill.....	do 24..	7 do ...	do 16...	do 19..	50	30	56	10
Broadcast machine.....	do 24..	8 do ...	do 18...	do 19..	42	14	50	46

Test of Thick and Thin Seeding.

The experiment undertaken in 1890 to determine the proper quantity of seed to be used with the different kinds of grain was repeated during the past season, with very similar results. Seven pecks of wheat again gave the largest yield, while the results with oats and barley vary little from last year's test. All the plots were sown with the common drill; soil, rich sandy loam.

WHEAT.

	Sown.	Headed.	Harvested.	Yield per Acre.	
				Bush.	lbs.
Red Fife, 4 pecks per acre.....	April 16....	July 20.....	Sept. 1.....	33	20
do 5 do	do 16....	do 20.....	do 1.....	36	25
do 6 do	do 16....	do 20.....	do 1.....	38	55
do 7 do	do 16....	do 20.....	do 1.....	39	55
do 8 do	do 16....	do 20.....	do 1.....	39	05

OATS.

Welcome, 8 pecks per acre.....	April 16....	July 14.....	Aug. 18....	86	01
do 9 do	do 16....	do 14.....	do 18....	87	12
do 10 do	do 16....	do 14.....	do 16....	87	02
do 11 do	do 16....	do 14.....	do 16....	78	13
do 12 do	do 16....	do 14.....	do 16....	88	23

BARLEY.

Two-rowed Duckbill, 5 pecks per acre.....	April 24....	July 16....	Aug. 16....	53	01
do 6 do	do 24....	do 16....	do 16....	57	14
do 7 do	do 24....	do 16....	do 16....	59	33
do 8 do	do 24....	do 16....	do 16....	58	31
do 9 do	do 24....	do 16....	do 16....	51	67

EXPERIMENTS WITH SMUDGES.

Smudges were largely used during the past fall for the prevention of injury by frost, farmers in some districts forming organizations for this purpose, and in others depending on individual effort.

Although realizing the difficulty of obtaining reliable results from experiments in this line, it was thought advisable to obtain all the information possible.

Two nights were spent during the second week in August testing thermometers in and out of smoke, but owing to the wind being too strong no conclusion could be reached. All the nights of the 20th and 21st August were also spent by me in attending smudges, which were started at sundown, and testing thermometers; and it was thought that there was at least a difference of two degrees between the thermometers in and out of the smoke. It is, however, very difficult to test this matter fully. A difference of a few feet in the level of the ground where the two thermometers are placed, a difference in the current of air passing over either of the instruments (caused by a ravine, cultivated land, &c.), changes in the wind, &c., are all disturbing elements which must be taken into consideration in reaching accurate conclusions.

It would appear, however, that a small smudge started only a short time before frost has very little effect in checking it.

The beneficial effect of even a small amount of cloud was noticed on the night of the 21st. From 6 p.m. of that night to 1 a.m. on the 22nd the sky was perfectly clear and the thermometer fell from 2 to 4 degrees every hour; from that time to 4 o'clock a few clouds appeared and the thermometer remained stationary. At 4 the clouds cleared off and the temperature immediately fell 4 degrees. It would appear from this that a dense smoke kept suspended over the crop from sundown to sunrise should have an effect somewhat similar to clouds, and prevent the temperature from falling.

MIXED GRAIN GROWN FOR HAY AND GREEN FODDER.

Much interest having been shown in the experiments undertaken here during 1890 with mixed grain for fodder, the most promising of these mixtures were again tested during the past season, and with gratifying success, the yield in every case being even larger than in 1890.

The grain was sown on backsetting with a common drill on the 26th April, the oats or barley being first sown, and the pease were afterwards sown between the drills of the first sown grain; this plan gave the roots of each variety of grain room to spread, but when both kinds of grain are sown at the same time the oats or barley generally crowds out the pease, greatly reducing the yield.

Spring rye was also sown at the same time on an adjoining plot, but the yield of fodder from this grain was much lighter than from any of the others.

MIXED GRAIN grown for Hay or Green Fodder.

Varieties.	Pecks per Acre Sown.	Stage when Cut.	Height.		Weight, Green.	Weight, Dry.
			Ft.	in.	Tons. lbs.	Tons. lbs.
Oats.....Black Tartarian	8 pecks...	In early milk....	5	0	} 13 275	} 4 1,675
Pease..... Prince Albert	4 do	Podded	6	0		
Oats.....Black Tartarian	8 do	In early milk....	5	0	} 13 650	} 5 510
Tares.....Large English	4 do	Podded	8	0		
Barley Danish Chevalier	3 do	In early milk....	0	40	} 12 1,375	} 3 1,725
Pease..... Prince Albert	1 do	Podded	6	0		
Rye.....Spring.	7 do	In early milk....	4	6	6 1,615	2 150

SEED DISTRIBUTION.

The distribution of seed grain in one and two-bushel lots has increased very much during the past year, and quantities are now sent from the farm to nearly every part of the province. Reasonable prices are charged, and farmers are thankful for the opportunity of buying pure seed grain near home.

Reports regarding the success of the different varieties of seed distributed are now coming in. Nearly all report success with White and Red Connell wheats, and Prize Cluster and Black Tartarian oats, and Duck-bill barley. Unusually large returns are reported from the White Connell wheat, Black Tartarian oats, and two-rowed Duck-bill barley; and all are pleased with the earliness of the Prize Cluster oats.

FODDER CORN.

I have great pleasure in reporting continued success with fodder corn, although the yield during the past season was not nearly equal to that of 1890. It was a very even and profitable crop, and proves conclusively that we need not depend solely on our wild meadows for fodder. With a yield of between 15 and 20 tons of excellent green fodder per acre, mixed farming is practicable even in our high-rolling prairie land, for corn is peculiarly suited to that class of soil.

A trial was made of cutting and binding corn with the common grain binder, and with corn from six to seven feet high it worked quite satisfactorily, and I have no doubt that with an open-backed machine similar to the one introduced this year by the Harris Co., even much taller corn might be cut and bound.

Among the varieties tested this year the most promising for this province, on account of their combining earliness with a fair yield, are North Dakota, White Flint, Red Blazed and Mitchell's Extra Early, the last named being an improved Squaw corn.

All were planted on backsetting 28th May in rows three feet apart and thinned out to six inches in the row. The crop was kept clean during the season of growth with a horse scuffer. All were cut on 29th August, previous to which a frost had injured the upper two feet of the plants, reducing the yield somewhat.

A large proportion of the corn was made into ensilage; the balance was made into stooks by tying the heads together and left in the field to be used dry during the winter. It is readily eaten both as ensilage and in the dry state.

FODDER CORN.

Variety.	Average Height.	Stage of Growth when Cut.	Condition of Ears.	Leafiness.	Yield per Acre.	
					Tons.	lbs.
	Feet.					
Golden Dent	6 to 6½	Not in tassel...	None.....	Fairly leafy ...	20	1,250
Thoroughbred White Flint	6 " 6½	Just coming into tassel	do	Very leafy	18	960
Blunt's Prolific.....	6 " 7	Not in tassel...	do	Fairly leafy	18	300
Golden Beauty	6 " 6½	do	do	Not very leafy..	17	870
Chester County Mammoth.....	5 " 5½	do	do	Fairly leafy	17	650
North Dakota	6 " 6½	Silk, dry	Early milk.	Very leafy	17	540
Long Yellow Flint.....	6 " 7	Coming into silk.	Nearly formed.	do	17	210
Stowell's Evergreen.....	5 " 5½	In tassel	None.....	do	16	1,010
King Philip	6 " 6½	In silk	Just formed ..	Fairly leafy ...	16	230
Egyptian.....	5½ " 6	In tassel	None.....	do	15	1,900
Asylum Sweet.....	5 " 6	Silk just appearing.....	Just forming...	Very leafy.....	15	1,680
Red Cob Ensilage.....	5 " 6	Tassel just appearing.....	None	Not very leafy..	15	1,680
Canada Yellow	5 " 6	In silk.....	Nearly formed.	Very leafy.....	15	1,350

FODDER CORN—*Concluded.*

Variety.	Average Height.	Stage of Growth when Cut.	Condition of Ears.	Leafiness.	Yield per Acre.	
	Feet.				Tons.	lbs.
Mammoth Southern Sweet.....	6 to 6½	Just in tassel...	None.....	Fairly leafy....	15	800
Giant Prolific Ensilage.....	5½ " 6	Not in tassel...	do.....	do.....	14	1,590
Longfellow.....	5½ " 6	Silk just appearing.....	Not formed.....	do.....	14	1,590
Mitchell's Early.....	4½ " 5	Silk, dry.....	Early milk.....	Very leafy at bottom.....	14	1,260
Red Blazed.....	6 " 6½	In silk.....	Nearly formed..	Fairly leafy.....	14	50
Pearce's Prolific.....	5 " 5½	Silk just appearing.....	Not formed.....	Quite leafy.....	13	1,610
Pee and Kay.....	5½ " 6	In silk.....	Formed.....	do.....	13	1,280
Long White Flint.....	5½ " 6	Silk just appearing.....	Not formed.....	Fairly leafy....	13	840
Dakota Gold Coin.....	6 " 6½	Full silk.....	Early milk.....	do.....	13	400
White Flint, from Dakota.....	5½ " 6	Silk nearly dry..	do.....	Very leafy.....	12	530
Yellow Flint.....	5½ " 6	In silk.....	Nearly formed..	Quite leafy.....	12	420
Eight-rowed Sugar.....	5 " 5½	Silk nearly dry..	Early milk.....	Fairly leafy....	12	310
Early Mammoth.....	4½ " 5	In tassel.....	None.....	Very leafy.....	12	310
Livingstone's Gold Coin.....	5 " 5½	Just in tassel...	do.....	Quite leafy.....	11	880
Potter's Excelsior.....	5 " 5½	In tassel.....	do.....	do.....	11	550
Virginia Horse Tooth.....	6 " 6½	Not in tassel...	do.....	Not very leafy..	10	1,120
Extra early Cory.....	4 " 5	Silk nearly dry..	Early milk.....	Leafy at bottom.	9	920
Cinquantine.....	5½ " 6	In silk.....	Partly formed..	Fairly leafy....	8	720
White Flint, from Steele.....	5 " 5½	Silk, green.....	Just formed....	Leafy at bottom.	15	800

FODDER PLANTS.

In addition to the Indian corn a number of varieties of corn-like millets, &c., were tested; owing, however, to the cool spring and summer, these did not give the yield they otherwise would have done. All were sown on grain stubble with the Planet Junior drill in rows three feet apart, and cut on 11th September, before which date the upper foot of the plants was injured by frost.

These plants have now been tried here on two greatly varying seasons, viz., in 1889, a hot dry summer, and the past season a wet and cool one, and in neither year were they equal to the early varieties of Indian corn, such as Mitchell's Early or North Dakota.

Below will be found particulars of yield, &c., of these plants.

Variety.	Stage of Growth when Cut.	Height when Cut.	Stalk to each Plant.	Yield per Acre of Green Fodder.	
		Inches.	Stalks.	Tons.	lbs.
White Millo Maize.....	Not yet in tassel.....	47	9	8	1,380
Large African Millet.....	do.....	51	11	7	1,620
Pearl Millet.....	do.....	43	12	7	740
Chana.....	Seed just appearing..	61	6	7	80
Corn from India.....	In tassel.....	63	6	6	1,200
Mandawar.....	Not in tassel.....	32	14	5	1,440
Kaffir Corn.....	do.....	68	9	4	580
Egyptian Rice Corn.....	do.....	54	13	4	360
Yellow Millo Maize.....	do.....	49	8	2	1,500

GRASSES.

Great interest continues to be manifested in the experiments undertaken in connection with grasses, nearly every mail bringing inquiries as to the most promising hay and pasture grasses for this country, and the grass plots on the farm receive more attention from visiting farmers than any other department. During the past year large additions have been made to the collection of grasses and clovers undergoing test, and up to the present date 46 varieties of grasses and 10 of clovers have been sown. Of these, 20 of the grasses and 9 of the clovers have experienced a winter; the balance were sown during the past summer, and their hardiness has not been tested. A number of those sown in 1890 were killed out last winter, and no doubt others will succumb during the present severe weather; still, quite a number have proved both hardy and productive, and it is hoped that we shall find among them some varieties well adapted to this country.

CULTIVATED GRASSES SOWN IN 1890.

Below will be found full particulars of cultivated grasses sown with wheat in the spring of 1890. When the wheat was about 2 inches high the grass and clover seeds were sown broadcast and harrowed in, covering the grass seed and killing a lot of weeds at the same time. Nearly all the clover (Common Red) in the timothy and clover mixture was winter-killed and the yield from this plot was light.

Both Sainfoin and Lucerne made a good even stand and came through the winter without injury, but the light rainfall of May was especially severe on them, for both require abundant rainfall early in the season; for this reason the yield from these plots was light.

The Alsike made a good stand the first summer, but about one half of the plants were winter-killed; the remaining plants and the timothy sown with it covered the ground fairly well and the returns were good.

Mammoth Red clover is with us decidedly the most promising of the clovers, coming through the winter without the least injury, and both alone and mixed with timothy gave a good crop of excellent hay; the stalk of this clover grows much finer here than in Ontario, and for that reason makes better hay,

Common Red clover was too tender for the open prairie, the plot of this variety being completely killed out.

White Dutch clover proved to be perfectly hardy, and promises to be quite useful for pasture.

Bokhara or Sweet clover was also hardy, and made a luxuriant growth 7 feet high. Although of very little use for fodder it is an excellent honey plant, and the perfume from its blossom was quite noticeable for the greater part of the summer.

Trefoil and Crimson clover with us were both winter-killed.

Austrian Brome Grass (*Bromus inermis*) is a very promising grass here. This did not winter-kill the least, grew 32 inches high and yielded $2\frac{1}{2}$ tons of excellent leafy hay.

Orchard Grass grew thick on the ground, but was rather short; it stood the winter, and keeps green quite late in the season, the aftermath from this variety being heavier than from any of the others.

Timothy covered the ground well, but failed to push up a proper proportion of stalks, and the crop was light; this is the general complaint from farmers regarding this grass, and for that reason its cultivation is not general.

All the Fescues proved hardy, but only the Meadow Fescue gave a fair return; this is a very promising grass, but should not be sown alone.

The following grasses were winter-killed:—Rough Meadow grass, Italian Rye grass, Perennial Rye grass and Meadow Fox-tail.

The plots were one-tenth of an acre in area; soil, rich sandy loam; all were cut about 15th July, but some of them should have been cut earlier.

GRASSES and Clovers sown with Wheat in 1890.

	Height.	Yield, dry, per Acre.		Remarks.
		Tons.	lbs.	
Mixed native grass.....	43 inches.	2	1,058	Injured by wind; excellent hay.
Mixed cultivated grasses.....	34 do	1	625	Orchard and Timothy most prominent
Austrian Brome grass.....	32 do	2	1,105	Very promising; hardy.
Orchard grass.....	28 do	2	200	Heavy bottom.
Meadow Fescue.....	25 do	1	666	Good pasture grass.
Sheep do.....	12 do	Not cut.		Only fit for pasture.
Hard do.....	18 do	do		do
Timothy and clover.....	34 do	1	1,942	Clover nearly all killed.
Mammoth clover and timothy.....	28 do	2	1,505	Quite hardy; nice crop.
do (alone).....	28 do	2	1,117	do do
Alsike and timothy.....	24 do	2	529	One half Alsike killed.
Sainfoin.....	26 do	1	1,529	Even crop; hardy.
Lucerne.....	26 do	1	844	do do
Bokhara clover.....	7 feet.	Not weighed.		Excellent bee plant.
White Dutch clover.....	12 inches.	Not cut.		Good pasture.
Common Red do.....				Winter-killed.
Trefoil.....				do
Italian Rye grass.....				do
Perennial do.....				do
Meadow Fox-tail.....				do
Rough Meadow grass.....				do

SOME NEW VARIETIES OF GRASSES.

A very interesting collection of grasses, many of them quite new to this district, was received in early spring from Mr. J. Fletcher, Botanist at the Central Experimental Farm. The seed of every variety grew and the collection was a source of interest to visiting farmers all through the season; many varieties made a large growth, and I trust some of them will prove hardy and worthy of cultivation in this province.

All were sown in double rows 25 feet long; the plants of desirable varieties will be pricked out and transplanted into beds during the coming season. Accompanying this will be found a table showing the percentage of germination, growth, &c., of these grasses.

GRASSES sown 2nd June, 1891; seed from Experimental Farm.

Variety.	Percentage Germinated.	Growth made in 1891	Remarks.
	Per cent.	Inches.	
<i>Bromus segetum</i>	100	24	Seed ripened.
<i>Bromus inermis</i>	100	20	do
<i>Elymus dasystachys</i>	10	2	
<i>Muhlenbergia Mexicana</i>	100	15	Seed ripened; bunchy.
<i>Sporobolus heterolepis</i>	30	2	
<i>Bromus Pampellianus</i>	100	14	Bunchy.
<i>Deyeuxia neglecta</i> , var. <i>robusta</i>	90	9	
<i>Deyeuxia Canadensis</i>	60	2	
<i>Poa nevadensis</i> from N. W. T.....	90	3	
<i>Poa pratensis</i> from Forres.....	100	9	
<i>Poa compressa</i>	100	14	Seed ripened.
<i>Muhlenbergia sylvatica</i>	100	16	Seed ripened; bunchy.

GRASSES sown 2nd June, 1891, &c.—*Concluded.*

Variety.	Percentage Germinated.	Growth made in 1891	Remarks.
	Per cent.	Inches.	
Muhlenbergia glomerata.....	100	16	Seed ripened.
Phalaris arundinacea.....	100	20	
Boutelouia oligostachya.....	100	6	do
Panicum virgatum.....	90	13	
Elymus Canadensis.....	100	6	
Hierochloa borealis.....	90	6	
Deyeuxia neglecta.....	90	9	
Deschampsia flexuosa.....	90	9	
Deschampsia cespitosa.....	90	9	
Agropyrum tenerum.....	90	6	
Agropyrum glaucum.....	100	9	
Apluda aristata.....	40		From seed sent in 1890.
Panicum ciliare.....	90		do do
Panicum colonum.....	30		do do
Koeleria cristata.....	None.		do do
Andropogon pertusus and annulatus (mixed)....	do		do do
Eleusine Indica.....	do		do do
Eragrostis poaeoidis.....	do		do do

NATIVE GRASSES GROWN UNDER CULTIVATION.

In the spring of 1889 eight small plots were sown with grass seeds gathered on the prairie here; these plots have not been re-sown since, and there is now no question as to the perennial character of these grasses, for they have improved every year since sown, and the yield from them this year was in most cases very large.

As all the seed obtainable was required to enlarge the work of this department none of the plots were cut in the green state, and the yields given are obtained from the ripe hay cut for seed. About 250 lbs. of seed was gathered and will be sown in large plots next spring.

About 2 acres was sown with the seed obtained from these plots in 1890; it made a good catch, and next fall we hope to have a quantity of seed for distribution among farmers.

As the plots from which the following returns were taken were small and kept perfectly free from weeds, such large returns must not be expected from ordinary field culture.

No manure was used on any of the plots.

NATIVE GRASSES.

Variety.	Height.	Hay Stage.	Seed Ripe.	Yield per Acre.
	Inches.			
Agropyrum tenerum, Vasey.....	41	July 4.....	August 7..	2 tons, 1236 lbs.
Agropyrum caninum, R. and S.....	43	do 4.....	do 22..	2 do 827 do
Poa serotina, Ehrh.....	28½	do 1.....	do 1..	Very thin, not cut.
Elymus Virginicus, L.....	40	do 26.....	do 22..	3 tons, 306 lbs.
Elymus Americanus, V. and S.....	48	do 15.....	do 28..	3 do 618 do
Phalaris arundinacea.....	35½	do 6.....	do 1..	2 do 100 do
Bromus ciliatus, L.....	50	do 24.....	do 22..	2 do 1,833 do
Muhlenbergia glomerata, Trin.....	31	do 26.....	do 22..	2 do 1,621 do

I have also pleasure in acknowledging the receipt from S. Robinson, Esq., of a collection of clover and grass seeds brought by him from Scotland last spring. These proved to be of extra good quality, nearly all germinating. Many are, however, of tender varieties, and their survival through the present severe winter is doubtful.

Below will be found particulars of this collection.

GRASS and Clover Seed received from S. Robinson, Esq., Wawanessa, Man.,
sown 2nd June, 1891.

Variety.	Approximate Percentage Germinated.	Growth made in 1891.	Remarks.
	Per cent.		
Italian Rye grass (Scotch seed).....	100	16 inches...	Very vigorous.
do (Foreign seed).....	100	16 do ...	do
Perennial Rye grass.....	100	14 do ...	
Cocksfoot	100	16 do ...	
English Red clover	100	20 do ...	Seed ripened.
English Cow Grass clover.....	100	20 do ...	do
Alsike clover	100	22 do ...	do
White do	100	Rank & close..	do
Yellow do	100	30 inches...	do
Large Scotch tares.....	100	40 do ...	Annual.

MILLETS AND HUNGARIAN GRASS.

Eleven plots were devoted to experiments with millets, as there is a difference of opinion regarding the merits of thick and thin sowing for this plant. Three sowings were made of each of the leading millets, one each of 15, 20 and 25 lbs. per acre. This test of the German and common millet was spoilt; that with Hungarian was complete, and points to 20 lbs. of seed per acre as the right quantity. Tests of rolling directly after sowing were also made with satisfactory results. All were sown on the 29th May and cut on the 29th August. The past summer was too cool for a large return from millets.

Variety.	Quantity of Seed per Acre.	Yield of Hay.	Remarks.
	Lbs.	Tons. lbs.	
Hungarian grass.....	15	2 1,350	Rather thin.
do	20	2 1,850	About right thickness.
do	25	2 1,350	Too thick on the ground.
German millet.....	20	2 1,700	About the right thickness.
Common do	20	2 1,400	do do
Hungarian grass (rolled)	20	2 1,920	Came up first.
do (not rolled)	20	2 1,700	Slower to germinate than the above.

RENEWING OF OLD MEADOWS.

It is found in many parts of the province that natural hay meadows after a few years cutting become infested with useless and often bitter weeds, which crowd out the grasses, until the meadows have to be abandoned.

On this farm a portion of the natural meadow was so overgrown with Pennsylvanian wind flower (*Anemone dichotoma*), and small sage bush (*Artemisia Ludoviciana*), both native plants, that it is no longer cut with profit. This portion of the meadow has been broken up, and after growing one crop of grain will be re-seeded with different varieties of grasses, and the result noted and reported on.

SILOS.

The two silos built in the west end of the barn were filled during the past season, as follows:—The lower one-third of the north one with green oats and pease uncut, and the upper two-thirds with fodder corn cut in 1-inch lengths; the lower half of the south silo was filled with millet uncut, and the upper half with cut fodder corn.

For the corn a Watson cutting-box with elevating attachments was used, and gave entire satisfaction; the cutting-box was run by our Abell two-horse tread machine, and there was no lack of power, the corn being cut and elevated as fast as two men could feed it.

Although the sides and corners of the silos were well tramped, while being filled, the ensilage settled so much that it was necessary to fill it several times. After the last filling a 2-foot coating of wheat chaff was put on over the ensilage, but no weights were used. On the 15th December the north silo was opened, and the ensilage found to be of excellent quality, with scarcely any waste on the sides or in the corners.

There being no roof over the silos, some inconvenience was experienced from frost, when the chaff covering was removed; this was overcome by the use of a false roof made of loose boards, tar paper and about 2 feet of chaff; this was found effectual in excluding the frost, and since then the cattle have been fed regularly on the ensilage with satisfactory results.

CATTLE.

During October last I visited Ontario and brought back a selection of 15 head of cattle for breeding and experimental purposes on this farm. These consisted of Shorthorns, Galloways, Holsteins and Ayrshires; nine of them were taken from the herd at the Central Experimental Farm and the balance purchased from breeders in Ontario.

All reached here safely and have remained in good health and gained rapidly in flesh since their arrival. Already a large number of farmers have inspected the stock, and all have expressed their appreciation of the efforts being made through the experimental farms to improve the stock of the country.

SHORTHORNS.

From Mr. W. S. Hawkshaw, Glanworth, Ont. :

One bull, General H, =14574=; colour, red; calved 15th December, 1890; bred by W. S. Hawkshaw, Glanworth, Ont.; got by Aberdeen Hero, (imp.) dam, Countess of Hawkhurst, =8752=; by 3rd Duke of Rutland, =559=; Countess 2nd =784=. From the Central Experimental Farm, and purchased originally from Mr. Thos. Guy, Oshawa, Ont. :

One cow, Rose of Sydenham =16031=; colour, red; calved 6th February, 1886; bred by Thomas Guy, Oshawa, Ont.; got by Samson, =8787=;—dam, Red Rose, =4450=; by Enterprise 2nd =1769=; Sally =4728=.

One heifer, Cowslip 4th; calved 7th March, 1890; bred at Central Experimental Farm, Ottawa; sire Rosy Prince 8th =9198=;—dam, Cowslip 3rd =16646=.

One heifer, Rose of Darlington; calved 24th July, 1890; bred at Central Experimental Farm, Ottawa; sire, Rosy Prince 8th =9198=;—dam, Countess of Darlington 12th =14193=.

One heifer calf, Fashion 9th; calved 5th March, 1891; bred at Central Experimental Farm, Ottawa; sire, Earl of Kinsale = =; got by Premier Earl (imp.);—dam, Fashion Book =15918=.

AYRSHIRES.

From D. Morton & Sons, Hamilton, Ontario :

One heifer, Jewell =2003=; calved 14th June, 1889; colour, white and brown; bred by Hugh Jack, Little Shewalton, Irvine, Scotland; sire, Dandy Jim (1579); dam, Judy (imp.) (5505); by Red Prince (1000); Mirley (2672).

From D. Morton & Sons, Hamilton, Ontario :

One heifer, Dandy 2nd =2004=; calved 6th April, 1889; colour, brown and white; bred by Hugh Jack, Little Shewalton, Irvine, Scotland; sire, Dandy Jim (1579);—dam, Dandy 1st (5502), by Red Prince (1000); Dandy of Shewalton (2688).

Dandy 2nd took second prize at Toronto in 1891.

From Kains Bros., Byron, Ont. :

One bull, Middlesex =1216=; calved 10th September, 1890; colour, red and white; bred by Kains Bros., Byron, Ont.; sire, Prince of Byron =583=;—dam, Jeanie of Auchenbrain (Imp.) =129=, by Duke 3rd =647=; Paisley, by Wallace of Doumlanrig =61=, Gray Kate by Rob.

HOLSTEIN FRIESIANS.

From A. E. Hallman & Co., New Dundee, Ontario :

One cow, Queen of Waterloo =14666=, H. F. H. B.; calved 12th April, 1888; colour, white with black markings; bred by A. E. Hallman & Co., New Dundee, Ont. sire, African Prince =1270=, H. F. H. B.;—dam, Mina Rooker 2nd =3742=, H. F. H. B.

Queen of Waterloo took 1st prize as a 2-year-old at London and Toronto in 1890.

From A. E. Hallman & Co., New Dundee, Ontario :

One cow, Princess Leda 2nd, H. F. H. B. =18510=; calved 6th January, 1889; colour, black with white markings; bred by Smith, Powell & Lamb, Syracuse, N. Y., sire, Netherland Monk =4424=, H. H. B. A. R.;—dam, Princess Leda 1st =7130=, H. F. H. B.

From the Central Experimental Farm, Ottawa :

One bull, Holland Prince; calved 31st August, 1890; colour, mostly black, with white markings; bred at the Central Experimental Farm, Ottawa; sire, Netherland Pythius =9167=, H. F. H. B.;—dam, Aaggie Cornelia, 2nd Netherland =12217=, H. F. H. B.

GALLOWAYS.

From the Central Experimental Farm, purchased originally from Mr. Thos. McCrae, Guelph, Ont. :

One bull, Chester (4472); calved 12th March, 1887; bred by Thomas McCrae, Guelph, Ont.; sire, Stanley III (1793);—dam, Chrissy (7099).

NOTE.—Stanley III, imported by Agricultural College, Guelph; and Chrissy imported by Thos McCrae.

One cow, Violet III, of Tarbreoch (9675); calved 30th March, 1886; bred by James Cunningham, Tarbreoch, Dalbeattie, Scotland; sire, Scottish Borderer (669);—dam, Maid III, of Tarbreoch.

NOTE.—This animal was a prize winner at the Highland Agricultural Society's Show in Scotland.

One cow, Hannah B., of Guelph (11080); calved 23rd February, 1888; bred by Thos. McCrae, Guelph, Ont.; sire, Stanley II (4473);—dam, Hannah III, of Castlemilk (7699); by Beaconsfield (1344);—dam, Hannah V (1421).

One bull-calf, "McCrae"; calved 14th March, 1891; bred at Central Experimental Farm, Ottawa; sire, ;—dam, Violet III, of Tarbreoch (9675).

EXPERIMENTS IN FEEDING STEERS AND SWINE.

Besides the cattle brought from Ontario, eight grade steers are being fed with different classes of food. These experiments will be continued during the winter and the results made known in the next report.

Experiments in feeding swine with barley and frozen wheat have also been undertaken, but are not yet completed.

HORSES.

The horses on the Experimental Farm are enjoying perfect freedom from disease. It is now over three years since they were brought to the province, and since that time none have died and no serious ailment has occurred among them. Their healthfulness is no doubt largely owing to the pure water found on the farm and the care taken in feeding, &c. When in full work, each horse is fed two meals per day of oats mixed with bran, and one meal (at night) of crushed grain, besides all the wild meadow hay they can eat up clean. On Sunday one-half the usual quantity of oats is fed.

EXPERIMENTS WITH TURNIPS.

Of the thirty-nine varieties of turnips tested during the past season the Mammoth Purple Top has given the largest yield and the best shaped turnip. Owing to the unfavourable season many of the varieties were very long in the neck, but the roots of the above variety were nearly all perfect in shape.

All were grown in rich loam soil in the lower portion of the valley. The sowing was done with the Planet Jr. drill, in level drills 30 inches apart.

Two sowings were made, one on the 15th May and the other two weeks later. The first sowing was nearly destroyed by cut-worms just as the plants appeared above ground. Several remedies were tried, and air-slacked lime applied near the plants appeared to do the most good, but in spite of all we could do the first sowing was nearly destroyed. The second sowing escaped injury from this cause, but the crop was somewhat late for the best results. All were pulled on the 22nd October.

The returns given were calculated from weighing three rows, each 66 feet long.

Variety.	Yield per Acre.	
	Bush.	Tons. lbs.
Highland Prize (Simmers)	833 ⁴ / ₅	25 28
Imperial (Webb).....	805 ⁴ / ₅	24 312
Mammoth Purple Top (Evans).....	770	23 200
Elephant or Monarch (Steele).....	765 ⁴ / ₅	22 1,936
Selected Purple Top (Steele).....	721 ⁴ / ₅	21 1,296
New Giant King (Webb).....	719 ⁴ / ₅	21 1,164
Marquis of Lorne (Bruce).....	719 ⁴ / ₅	21 1,164
Clyde Improved (Evans).....	712 ⁴ / ₅	21 768
Bangholm (Simmers).....	712 ⁴ / ₅	21 768
Hartley's Bronze (Pearce).....	688 ⁴ / ₅	20 1,316
Purple Top Swede (Rennie).....	677 ⁴ / ₅	20 656
Skirving's Swede (Steele).....	660	19 1,600
Carter's Elephant (Bruce).....	576 ⁴ / ₅	17 584
<i>Turnips—Garden Varieties.</i>		
Long White Verties	847	25 820
Early White Stone.	843 ³ / ₅	25 600
Early Six Weeks	748	22 880
Orange Jelly.....	726	21 1,560
White Globe Strapleaf	718 ⁴ / ₅	21 1,120
Red Top Strapleaf.....	597 ⁴ / ₅	17 1,860
Burpee's Breadstone.....	586 ⁴ / ₅	17 1,200
Extra Early Milan.....	498 ⁴ / ₅	14 1,920
Sweet German	454 ⁴ / ₅	13 1,280
Early White Flat Dutch	451	13 1,060
Lang's Improved Purple Top.....	396	11 1,760
Hasyard's Improved	359 ⁴ / ₅	10 1,560

Grown from Seed sent to the Farm by Mr. Stewart Robinson, Wawanessa.

Variety.	Yield per Acre.	
	Bush.	Tons. lbs.
Mammoth Purple Top.....	975 $\frac{4}{10}$	29 520
Devonshire Grey Stone.....	894 $\frac{4}{10}$	26 1,680
Old Muldrum Green Top Yellow.....	748	22 880
Wosterton Hybrid.....	623 $\frac{2}{10}$	18 1,400
Aberdeen Green Top Yellow.....	528	15 1,680
Pomeranian White Globe.....	498 $\frac{4}{10}$	14 1,920
Sutton's Champion Swede.....	491 $\frac{4}{10}$	14 1,480
Drummond's Improved.....	418	12 1,080
Sharpe's Improved.....	388 $\frac{4}{10}$	11 1,320
East Lothian Purple Top.....	374	11 440
Green Top Swede.....	374	11 440

From Seed sent to the Farm by R. Waugh, 1890.

Dads Improved East Lothian Swede, seed saved in Kent, England....	498 $\frac{4}{10}$	14 1,920
do do do East Lothian.....	381 $\frac{4}{10}$	11 880
Purple Top Swede.....	425 $\frac{4}{10}$	12 1,520

POTATOES.

One hundred and eleven varieties of potatoes were tested on the farm during the past season; of these, forty varieties were grown in such small quantities that returns are not available this year.

All were planted on 23rd May, in rows 3 feet apart, and 1 foot apart in the row, and all were dug on 12th October.

The following list of twenty-four varieties were selected from among the most promising of those grown at the Central Experimental Farm; the quality of nearly all of them was found to be good, and a number of them have under the circumstances given fair returns.

POTATOES.

Variety.	Growth of Plant.	Size of Tuber.	Quality.	Flavour.	Ripe.	Colour.	Yield per Acre.
							Bush.
Vanguard.....	Fair.....	Large....	Very dry	Good.....	Late.....	Red.....	214
Early Puritan.....	Strong....	do.....			do.....	White.....	209
Delaware.....	do.....	Medium..	Dry.....	Good.....	do.....	do.....	203
Early Rose.....	Fair.....	Large....	do.....	do.....	do.....	Red.....	192
Empire State.....	Strong....	do.....	Wet.....	Poor.....	do.....	White.....	191
Halton Seedling.....	Fair.....	Medium..	Dry.....	Good.....	Sept. 1..	Red.....	183
Algoma No. 1.....	Weak.....	Large....	Extra dry.	do.....	Aug. 15..	do.....	176
London.....	Fair.....	Medium..	Dry.....	do.....	Late.....	do.....	172
Lee's Favourite.....	do.....	do.....	do.....	do.....	Sept. 1..	Light red.	170
Beauty of Hebron.....	Weak.....	do.....	do.....	do.....	do 1.....	do.....	168
May Queen Early.....	Strong....	do.....	do.....	do.....	do 3.....	Red.....	168
Thorburn.....	Fair.....	Large....	do.....		Late.....	do.....	163
Clarke's No. 1.....	do.....	Small....	Fair.....	Fair.....	do.....	Light red.	163
Early Eating.....	Weak.....	Large....					154
Early Maine.....	Fair.....	do.....	Very dry..	Good.....	Sept. 1..		150
Rural Blush.....	Strong....	Very large	Fair.....	do.....	Late.....	Red.....	148
Rural New Yorker No. 2.....	do.....	Large....	Wet.....	Poor.....	do.....	White.....	137
Chicago Market.....	Fair.....	Very large	Dry.....	Good.....	do.....	Red.....	137
Rose's New Giant.....	do.....	do.....	Fair.....	do.....	do.....		133
White Star.....	Strong....	Medium..	Wet.....	Poor.....	do.....	White.....	133
Early Ohio.....	Fair.....	do.....	Dry.....	Good.....	Sept. 1..		126
Ohio Gummer.....	Weak.....	Large....	do.....	do.....	Aug. 15..	Red.....	119
Brownell's Winner.....	Strong....	Medium..	Wet.....	Poor.....	Late.....	Dark red..	102
Vermont.....	Fair.....	Large....	Dry.....	Good.....	Sept. 1..	Red.....	113

The location selected for potatoes this year was strong low-lying land, and unsuitable for a season like the past one. Although planted on 23rd May, many were not above ground by 15th June, and all were very backward in consequence; for that reason the dates given for their ripening would be different if grown under more favourable conditions. Those marked *late* were not ripe when cut down by frost.

The yields per acre are calculated from weighing the produce of two rows 66 feet long.

A number of the varieties tested last year were found undesirable and were discarded. The following list includes the most promising of the varieties tested in 1890, among them a number of seedlings raised on the Central Experimental Farm. One of them, No. 80, has again given much the largest yield of any potato grown on this farm. It is proposed to grow this variety more extensively next season.

POTATOES.

Variety.	Growth.	Size.	Quality.	Flavour.	Ripe.	Colour.	Yield per Acre.
							Bush.
C. E. Farm, No. 80	Strong.	Fair	Fair	Fair	Late		335
Richter's Imperator	do	do	do	do	do	White	209
Alpha	Fair.	Medium	do	Good	do	do	191
Rosy Morn.	Weak	do	Wet	Poor	Sept. 10.	Red	188
Stray Beauty	Fair.	do				do	183
Crown Jewel	do	do	Dry	Good	Late	do	179
Richter's Schneerose.	do	do	Fair	Fair	do	White	177
White Elephant.	do	do	do	do	do	do	159
New Badger State	Strong.	do	Wet	Poor	do	do	149
C. E. F., No. 188.	Fair.	Small	do	do	do	do	148
Thorburn's Late Rose	Strong.	Large	Fair	Good	do	Red	146
Wonder of the World	Fair.	Medium	do	Fair	Sept. 10	do	141
C. E. F., No. 94.	do	do	Wet	Poor	Late.	White	141
Early Callao.	do	do	do	do	do	do	141
Amon's Early	do	Small	Dry	Good	do	Red	137
Jackson's Improved	Strong.	do	Wet	Bad	do	White	135
C. E. F., No. 9	Fair.	Medium	Fair	Good	do	do	135
Thorburn's Paragon	Weak	do	Dry	do	do	Red	132
Early Rose	Fair.	do	do	do	do	do	130
C. E. F., No. 225	do	do	Wet	Poor	do	White	128
Brownell's Best	do	Large	do	do	do	do	126
Jumbo.	Weak	do	Fair	do	do	do	121
C. E. F., No. 118.	do	Small	Wet	Fair	Sept. 1	do	117
St. Patrick.	do	Large	Very wet.	Poor	Late.	Red	110
C. E. F., No. 53.	Strong.	Medium	Fair	Fair	do	Blue	108
do 170.	Fair.	Small	do	do	do	do	108
do 54.	Weak	Medium	Dry	Good	Sept. 10.	Red	106
Taylor's Prolific.	Fair.	Large	Wet	Poor	Late.	do	106
C. E. F., No. 195	do	Small	Fair	Fair	do	White	104
Pride of America.	Weak	Medium	do	do	Sept. 10	Light red.	100
Lady Finger.	Strong.	Small	do	Good	Late.	White	100
C. E. F., No. 231.	do	do	Wet	Poor	do	Blue	99
do 141.	Fair.	do	do	do	Sept. 15.	White	97
Snow flake.	do	Large	Fair	Fair	do 15.	do	95
C. E. F., No. 263.	Strong.	Medium	Wet	Poor	Late.	do	91
Genessee Seedling	Fair.	Large	Dry	Good	do	do	91
C. E. F., No. 83	Strong.	Small	Wet	Poor	do	Blue	81
do 209	Fair.	do	do	do	do	White	81
do 153.	Strong.	do	do	do	do	R. blue	80
do 5	Fair.	Medium	Dry	Good	do	White	77
do 73	Weak	Small					73
Lee's Favourite.	Fair	Large	Dry	Good	Sept. 1.	Red	71
C. E. F., No. 98	Strong.	Medium			Late.	White	58
do 73	Weak	Small	Fair	Fair	do	do	40
do 118 A.	Fair	do	Wet	Poor	do	do	31
Asparagus	Weak	Very small	Fair	Fair	do	do	20

MANGELS.

Fifteen varieties of this useful vegetable were grown on this farm; the land selected for the purpose was a deep rich loam, but somewhat too moist for the season. Each variety was sown with a Planet Jr. drill, in level drills 30 inches apart. The first series of plots were sown on the 15th May, and were destroyed by the same cut-worm that worked among the turnips; the second sowing was made two weeks later; these were only slightly injured by the cut-worm.

All were pulled on the 4th October, and are being fed to the milking cows on the farm.

The yields given were calculated from weighing the produce of three rows, each 1 chain long.

EXPERIMENTS WITH MANGELS.

Variety.	Yield per Acre.		
	Bush.	Tons.	Lbs.
Carter's Warden Orange Globe.....(Bruce)	1012	30	720
Mammoth Long Red.....(Evans)	950 $\frac{3}{4}$	28	1,024
Pearce's Canadian Giant.....(Pearce)	822 $\frac{3}{4}$	24	1,368
Gate Post.....(Bruce)	822 $\frac{3}{4}$	24	1,368
Mammoth Long Red.....(Simmons)	814	24	840
New Giant Intermediate.....(Steele)	800 $\frac{3}{4}$	24	48
New Giant Yellow Globe.....(Bruce)	792	23	1,520
Mammoth Long Red.....(Steele)	778 $\frac{3}{4}$	23	728
Champion Yellow Globe.....(Webb)	748 $\frac{3}{4}$	22	880
Golden Tankard.....(Evans)	730 $\frac{3}{4}$	21	1,824
Mammoth Long Red.....(Webb)	730 $\frac{3}{4}$	22	352
Yellow-fleshed Tankard.....(Webb)	695 $\frac{3}{4}$	20	1,712

EXPERIMENTS WITH CARROTS.

Fourteen varieties of carrots have been tested during the past season. The first series of plots were sown on 12th May and the second on the 26th May. All were pulled on 24th October. The seed was sown with a Planet Junior drill in level drills, 18 inches apart, in deep rich loam. The plots were on rather low land and were injured somewhat by heavy rains. The yields were calculated from weighing the produce of three rows, each 66 feet long.

Variety.	YIELD OF PLOT SOWN MAY 12.			YIELD OF PLOT SOWN MAY 26.		
	Per Acre.	Per Acre.		Per Acre.	Per Acre.	
	Bush.	Tons.	lbs.	Bush.	Tons.	lbs.
Improved Short White (Steele).....	425 $\frac{2}{3}$	12	1,520	374	11	440
Large White Vosges (Bruce).....	418	12	1,080	396	11	1,760
Green Top Ortle (Pearce).....	410 $\frac{2}{3}$	12	640	381 $\frac{2}{3}$	11	880
Large White Vosges (Simmons).....	396	11	1,760	418	12	1,080
Mammoth Intermediate White (Rennie).....	381 $\frac{2}{3}$	11	880			
Chantenay (Bruce).....	366 $\frac{2}{3}$	11		366 $\frac{2}{3}$	11	
James Intermediate (Pearce).....	366 $\frac{2}{3}$	11		308	9	480
Guerande or Ox Heart (Steele).....	352	10	1,120	381 $\frac{2}{3}$	11	880
Early Gem (Rennie).....	344 $\frac{2}{3}$	10	680	366 $\frac{2}{3}$	11	
Giant Short White Vosges (Rennie).....	337 $\frac{2}{3}$	10	240	366 $\frac{2}{3}$	11	
Yellow Intermediate (Webb).....	322 $\frac{2}{3}$	9	1,360			
Mitchell's Perfection (Pearce).....	300 $\frac{2}{3}$	9	40	293 $\frac{2}{3}$	8	1,600
Half Long Scarlet Luc (Rennie).....	234 $\frac{2}{3}$	7	80	432 $\frac{2}{3}$	12	1,960
Scarlet Altringham (Webb).....	200	6	1,200	315 $\frac{2}{3}$	9	920

APPLES.

In the fall of 1890 all apple trees then living were wrapped in straw and tar paper for protection during the winter and early spring. On 15th April, 1891, this covering was removed, and it was found that most of the trees had come through the winter with little or no injury. From the 15th to the end of April the weather was warm, and caused the trees to swell their buds very rapidly. During the second week in May several very sharp frosts occurred, causing great injury to all the fruit trees in their then advanced stage of growth. From the effects of this severe check, nearly all lost a considerable part of their wood, and several trees were killed. Since then the season has been very favourable, and apple trees have all made good growth, and most of the wood is well ripened.

Four hundred apple trees, comprising 140 varieties, were planted in 1889; of these 272, of 102 varieties, are still growing. Although growing slowly, some of the trees are apparently quite hardy, and the severe cold of winter does not affect them. They are still very young and have not yet borne fruit.

These trees were procured from various sources, and it is noticeable that the farther north the trees have been raised the more hardy they are here. The seedlings raised at Ottawa from seed procured in Russia, and planted here in the spring of 1890, are very promising. Although unprotected, they came through last winter and spring without injury, and it is hoped that from these some varieties may be obtained that will grow successfully in this province.

From the following tables it will be seen that very few apple trees have been lost during the past year. Where trees had died in the orchards, they have been replaced by others from the nursery rows, and an additional orchard has been planted with 100 trees, placed 10 feet apart.

APPLE Trees growing in Bush form, on low Stems.

Name of Variety.	No. of Trees Living.		Present Condition.	Season's Growth.
	1890.	1891.		
Anisim.	4	4	Good.....	14 inches ; hardy growth.
Autumn Streaked.	5	5	do	20 do extra hardy.
Broad Green.	2	2	Extra good...	18 do hardy growth.
Blushed Calville.	5	3	do	22 do do
Christmas.	2	2	Fair.....	Small do
Cross.	2	2	do	do do
Crooked Spice.	1	1	Good.....	14 inches do
Duchess of Oldenburg.	10	10	do	38 do extra hardy.
Grandmother.	9	8	do	16 do do do
Krimskoe.	2	1	Poor.....	Small.
Koursk Anis.	3	3	Fair.....	do hardy.
Koursk Reinette.	1	1	Good.....	14 inches do
Karabovka.	2	1	Fair.....	Small.
Kruder.	1	1	do	do do
Kremer's Glass.	1	1	do	do do
Lejanka, or Liebig.	13	13	Extra good...	18 inches ; very hardy growth.
Osmoe.	1	1	Good.....	14 do hardy growth.
Orel, No. 5.	1	1	do	11 do do
do 11.	1	1	do	16 do do
Ostrokov's Glass.	4	3	Fair.....	10 do do
Pineapple.	3	3	do	14 do do
Plikanoff.	9	9	Good.....	22 do extra hardy.
Russian Green.	1	1	Fair.....	Small.
Repolovka.	2	2	do	do hardy growth.
Red Replka.	4	4	do	14 inches do
Romna.	8	6	Good.....	11 do do
Red Anis.	14	14	Very good...	30 do extra hardy growth.
Sandy Glass.	1	1	Poor.....	Small, killed back.
Sugar Sweet.	2	2	Fair.....	10 inches.
Silken.	4	4	Good.....	16 do hardy growth.
Simbirsk, No. 1.	2	2	do	10 do do

APPLE Trees—*Continued.*

Name of Variety.	No. of Trees Living.		Present Condition.	Season's Growth.
	1890.	1891.		
Simbirsk, No. 2.....	2	1	Good.....	14 inches ; hardy growth.
do 6.....	2	0		
do 9.....	2	2	Good.....	11 do do
Tashkin.....	2	2	do.....	16 do do
Tiesenhausen.....	1	1	Very good.....	20 do do
Titovka.....	8	8	do.....	18 do extra hardy growth.
Ukraine.....	4	3	Good.....	14 do hardy growth.
Vargulek.....	4	3	do.....	12 do do
White Pigeon.....	1	1	do.....	14 do do
Yellow Arcadian.....	2	2	do.....	10 do do
Yellow Anis.....	9	9	Very good.....	16 inches ; extra hardy.
Yellow Sweet.....	1	1	Poor.....	Small.
Zusoff.....	2	2	Good.....	10 inches ; hardy growth.
Russian Seedlings.....	340	340	Very promis- ing.....	24 do extra hardy.

The following were tall standard trees, nearly all of which are now being grown in bush form from lower part of stem, as the bare stems in the standard form were found to suffer severely from sun-scald :—

Antonovka.....	6	5	Good.....	16 inches ; hardy growth.
Arabka, summer.....	2	2	Very good.....	22 do do
do winter.....	2	2	Fair.....	10 do do
Anis.....	3	2	Good.....	14 do do
do red.....	1	1	do.....	18 do do
do mottled.....	2	1	Poor.....	Small.
Aport.....	4	4	Good.....	30 inches ; hardy.
Alexander.....	6	4	Fair.....	18 do kills back.
Blue Pearmain.....	1	1	do.....	8 do do
Ben Davis.....	4	3	Good.....	14 do
Borovinka.....	2	2	do.....	28 do hardy growth.
Canada Baldwin.....	4	3	Fair.....	26 do kills back.
Duchess of Oldenburg.....	4	4	do.....	18 do do
Fameuse.....	3	3	Poor.....	Small do
Gipsy Girl.....	4	3	Good.....	16 inches ; hardy growth.
Grand Duke Constantine.....	2	1	Fair.....	30 do
Golden White.....	2	2	Good.....	15 do do
German Calville.....	1	1	Poor.....	12 do kills back.
Golden Russet.....	3	2	Fair.....	32 do do
Grimes Golden.....	1	1	do.....	28 do do
Hibernal.....	4	4	Good.....	16 inches ; hardy growth.
Herren.....	3	1	Fair.....	10 do
Haas.....	1	1	Good.....	38 do do
Enormous.....	2	1	Fair.....	Small.
Bogdanoff's Glass.....	2	1	Good.....	40 inches ; kills back.
Kellogg Russett.....	2	1	Poor.....	10 do do
Lead.....	2	2	Good.....	24 do
Livland Raspberry.....	1	1	do.....	24 do
Longfield.....	4	4	Fair.....	16 inches ; hardy growth.
Mann.....	2	1	do.....	27
McIntosh Red.....	4	2	Poor.....	10
Pointed Pipka.....	2	2	Very promis- ing.....	19 do extra hardy growth.
Peach.....	2	2	Fair.....	34 inches ; kills back.
Red Bietigheimer.....	1	1	do.....	16 do do
Red Astrachan.....	2	2	do.....	16 do do
Steklianka.....	2	2	Good.....	30 do
Serinka.....	1	1	do.....	40 do
Scott's Winter.....	2	1	do.....	40 do kills back.
Switzer.....	2	2	Fair.....	26 do do
Stettin Yellow.....	1	1	Poor.....	11 do do
Shaker Pippin.....	2	2	Fair.....	16 do do

APPLE Trees—Continued.

Name of Variety.	Trees Living.		Present Condition.	Season's Growth.
	1890.	1891.		
Tetofsky	3	3	Good	10 inches.
Titovka	2	2	do	30 do
Talman's Sweet	1	1	Fair	24 do kills back.
Ukraine	2	2	Good	32 do hardy growth.
Vargul	1	1	Fair	Small.
White Borodovka	1	1	Good	34 inches.
Winter St. Lawrence	2	2	do	16 do
Wallbridge	2	1	Poor	Small.
Wealthy	2	2	Good	17 inches.
Yellow Transparent	5	2	Fair	14 do

CRAB APPLES.

Thirty-five crab apple trees were planted in 1889, of which 26 are still living, and are now making a promising, hardy growth.
So far as tree-growth is concerned, the Transcendant, Hyslop, Whitney's No. 20, and Orange varieties of crab apples will eventually succeed in this province, but our trees being very young have not yet borne fruit.
The following are growing as tall Standards on single upright stems :—

Name of Variety.	Trees Living.		Present Condition.	Season's Growth.
	1890.	1891.		
Transcendant	9	9	Very good	28 inches ; hardy and very promising.
Whitney's No. 20	3	3	do	24 inches ; very hardy.
Hyslop	7	7	do	24 do do
Orange	2	2	do	27 do hardy and very promising.
Early Strawberry	2	2	Fair	14 inches ; kills back.
Queen's Choice	2	1	do	18 do do
Lou's Favourite	1	1	Good	18 do hardy.
Martha	1	1	Fair	16 do

CHERRIES.

Of 13 cherry trees planted in 1889, all have been winter-killed, excepting two trees of the Ostheim variety, which are still growing from roots.
Twenty trees of Russian varieties were planted in the spring of 1890, and of these 12 are still living, and appear to be of a more hardy class than those first planted.

Name of Variety.	Trees Living.		Present Condition.	Season's Growth.
	1890.	1891.		
Bessarabian	4	2	Good	Small.
Lutovka	5	5	do	10 inch.
6m. Cherry	4	2	do	12 in. ; hardy growth.
12m. do	2	1	Fair	Small.
Koslov Bush Morello	5	4	Good	10 inch. ; hardy growth.

PLUM TREES.

Although it has come under my notice that some of the improved wild varieties of plums are being successfully grown in parts of this province, the result of our trials with this fruit so far have not been satisfactory.

The standard trees planted in 1889 were all killed back to the snow line, and although they made good growth again during the summer of 1890, the new wood was again killed back last winter.

A few small northern-grown trees of the De Soto and Early Red varieties, planted in 1889 and 1890, have been more successful; their growth being hardier, they have not suffered so much from the effects of winter.

Name of Variety.	Trees Living in Fall of		Present Condition.	Season's Growth.
	1890.	1891.		
Bradshaw.....	2	2	Growing from roots	30 inches from roots.
Coe's Golden Drop.....	1	1	do do	34 do do
De Soto.....	2	2	Good.	18 inches.
Early Red.....	7	7	do	16 do
Late Red.....	2	1	Growing from roots	Small.
Marianna	2	2	do do	4½ inches from roots.
Moore's Arctic	2	1	do do	18 inches.
Nicholas	3	3	do do	40 do
Otschakoff	2	2	Good.....	Fair.
Yellow Gage	1	0	.....	.....
Trabische	1	1	Growing from roots	Small.
Native Wild Plum.....	7	7	Good.	Good.

PEAR TREES.

Of 27 pear trees planted in 1889, 4 trees of the Russian varieties are still living, and, although making a slow growth, appear to be hardy. With the exception of a few trees which are growing from the roots, all other varieties have been winter-killed.

Fifty seedlings raised from seed imported from Russia were planted in rows in the spring of 1890. Of these 30 are living and making good growth, and at present are very promising.

Name of Variety.	Trees Living.		Present Condition.	Season's Growth.
	1890.	1891.		
Bessemianka	1	1	Good.	14 inches; hardy.
Clapp's Favorite.....	2	1	Poor.....	Small; kills back.
Flemish Beauty.....	2	1	do	do do
Howell	1	0	.....	.....
Gakovsk	1	1	Good.	10 inches; hardy.
Kurskaya	3	2	do	16 do do
Pomeranovka	1	0	.....	.....
Sapieganovka	1	0	.....	.....
Seckel	2	1	Poor	Small.
Thin Twig	1	0	.....	.....
Russian Seedling.....	30	30	Promising	12 inches; hardy.

RASPBERRIES AND BLACKBERRIES.

In the fall of 1890 a portion of the canes of each variety then living were covered with earth or manure as a protection against the winter, while the remainder were left unprotected. In April, 1891, they were uncovered, and it was found that, owing to the warmth of the soil, those covered were in an advanced stage of growth, and suffered more from the cold weather which followed than those unprotected. In the case of the red raspberries no difference was observable during the summer between the protected or unprotected, but with the Black-cap varieties there was a marked difference in favour of protection.

The following varieties are doing well, and have fruited during the past season:—

Philadelphia (red), "from plants procured in the province," is very hardy, and does well without protection, is a good bearer, and very early; fruit ripening with us from July to September.

Turner (red), is also very hardy; fruiting on both old and young canes; fruit ripened from early in August to end of September.

Hilborn (Black-cap), although very hardy, is the better for a little winter protection; bears well; fruit ripening during August and September.

The Marlboro', Cuthbert, Reider, Heebner, Golden Queen and Caroline, in the red and yellow varieties; Gregg, Black-cap and Snyder, Wachusett's, Thornless and Agawam blackberries grew well, and fruited with us during the past season, but having only a few plants of each variety, we cannot yet speak with certainty as to their hardiness.

STRAWBERRIES.

The strawberries planted in 1889, in a sheltered plot on the hill-side, came through the winter in good shape, and during the past season yielded a fair crop of fruit. The Crescent variety again fruited well, and commenced to ripen the first week in July, followed closely by Captain Jack and Wilson. Bubach and Manchester with lighter yields ripened in the middle of July. Sharpless and Daniel Boone fruited very heavily, but being later, only ripened a part of their fruit.

In May a new plot was planted with runners from the old bed, and in August the old bed was thinned out, and allowed to make runners for another season.

GOOSEBERRIES.

With the exception of one variety, the "Houghton," all of the gooseberry bushes suffered severely from the effects of the trying weather experienced last spring. Coming safely through the winter, the warm weather of April brought them rapidly into leaf, and being very tender, when sharp frosts and winds occurred in May a great many were killed, and those surviving lost their blossom and were badly frozen back. During the past season they have grown again very rapidly, the result being that the new wood is weak and straggling, lying on the ground instead of growing into bush shape. Tests of different modes of training and pruning are being made in the endeavour to overcome this straggling habit.

Name of Variety.	Plants Living.		Remarks.
	1890.	1891.	
Houghton	156	143	Hardy; appears to be the best for this province.
Downing	133	10	Doubtful.
Smith's Improved	65	22	do
Native	31	31	Useful, but requires training; fruit small.

CURRANTS.

Although the currant bushes suffered from the spring weather in the same manner as the gooseberries, they were not injured so badly, scarcely any being killed. The effect on their growth during the season has, however, been precisely the same; the young shoots and blossoms were destroyed, and much of this season's growth has been lost, it being necessary to cut away all straggling shoots.

Name of Variety.	Plants Living.		Remarks.
	1890.	1891.	
Black Currants, Lee's Prolific.....	426	426	Perfectly hardy.
do Blk. Champion.....	10	10	do
do Blk. Naples.....	100	100	do
Red Currants, Fay's Prolific.....	24	16	Hardy; lost from effects of roots washing bare.
do Raby Castle.....	202	202	do
do Red Cherry.....	140	140	do
do Red Grape.....	10	6	do
do Victoria.....	13	9	Doubtful.
White Currant, White Grape.....	170	170	Hardy.
Native Black.....	39	39	Bears well, but fruit does not ripen evenly.
Native Red.....	11	9	Tests not satisfactory.

GRAPE VINES.

In my last report mention was made of the planting in a well-sheltered plot during 1890 of 100 grape vines; although all were living in the fall and were very carefully covered before severe weather, none survived the winter.

We have now tested most of the hardy varieties of cultivated grapes, and experiments are being undertaken with the native grape found growing wild in many parts of the province.

FRUIT TREES PLANTED IN 1891.

In May last a fresh collection of trees were received from the Central Experimental Farm at Ottawa. This collection consisted of 103 trees of large fruits and 318 plants of small fruits. These were planted in rows, and were all living when winter set in. They will be reported on after they have passed the ordeal of a winter here.

FOREST TREES AND SHRUBS.

As considerable interest is taken in this branch of the farm work, it is thought advisable to give results of another year's testing, so as to show the growth and hardiness of the different varieties of trees and shrubs.

It will be observed that a large percentage of trees have been lost, but these should not be charged altogether to the climate, as many of those lost are of varieties which although desirable to test were never expected to be hardy so far north.

Again, as most of our trees came from distant points and were a long time in transit, a number have been lost from the effect of heating, etc. It is also noticeable that a very large percentage of loss has been incurred with seedling trees. This tends to show that young seedlings of some varieties of trees are at too tender a stage of their growth to bear transplanting in this climate. The greatest success appears to have been obtained so far with trees of from two to four years' growth.

It will be seen from examination of the following tables that with careful selection and planting, followed by judicious cultivation, it is possible to grow in the pro-

vince a large variety of trees and shrubs. Some trees are especially worthy of notice for hardiness, as the native ash-leaf maple, native ash, oak and white elm, the Russian poplars and willows, cottonwoods, Russian olive, mountain ash, alder, Caragana, Scotch pine and white spruce; whilst for quick growth and length of season in leaf the Russian poplars and willows and birch of all varieties are very noticeable. On this farm we have the Petrovsky poplar $8\frac{1}{2}$ feet high from cuttings planted in 1889, and the Voronesh willow $7\frac{1}{2}$ feet high from cuttings planted in 1890. Some small birch planted in 1889 are now 7 feet high and have made a bushy growth 6 feet across.

A number of trees were planted in the spring of 1890, in gravelly and light soil, on the exposed prairie at the north end of the farm; of these, only 8 per cent have died. The trees doing best in this soil are cottonwoods, Russian poplar, Voronesh willow, Russian olive and native maple and elm. It will be seen by this that the above trees will succeed on all classes of soil in this province.

FOREST Trees planted in 1889 and 1890, with number living in Fall of 1891.

	Planted.	Living.	Planted.	Living.	Present Height.	Season's Growth.	Remarks.
	1889.	1891.	1890.	1891.	Inch.	Inch.	
Ash, white.....			2,886		36	28	Hardy.
do do seedlings.....	250						Too young to transplant.
do pubescens or red.....			500	363	38	26	Half hardy.
do do seedlings.....	349	39					Too young to transplant.
do Acuminata.....			61	4	44	16	Hardy.
do green.....	285	156	2,000	1,911	26	24	Kills back.
do black.....			134	15			
do European mountain.....	51	26	31	11	68	14	Half hardy.
do American do.....	22	16	111	104	76	18	Very hardy.
Alder, European.....	50	30	100		36	20	Hardy.
do white.....	10	4	100	18	50	28	do
Arbor Vitæ or Cedar.....	1,066	362	68	5	24	10	Doubtful.
Birch, yellow.....	105	89			78	34	Hardy.
do white.....	50	48	42	16	84	39	do
do canoe.....	40	28					do
do sweet.....	10	6					do
Coffee tree, Kentucky.....			250	38			Kills back.
Cherry, black.....	153	4					Not hardy.
Chestnuts, sweet and Spanish.....			50				
Black walnut.....			1,000				Too tender.
Butternut.....			900	356	20	10	
Black locust.....			500	80			Too tender.
Elm, American.....	1,082	361	5,389	5,021	62	34	Half hardy; kills back.
do from native seed.....	1,087	954			75	34	Hardy.
Hemlock.....	42						
Honey locust.....			500				
Hickory.....			15				
Oak, burr.....	100	5	100	62		Small...	Hardy.
Larch, European and American.....	522	20	138				Received too late in spring.
Linden seedlings.....			500	31		Small...	Too young to transplant.
Maple, ash-leaf, native.....	503	500	175	175	65	47	The native maple.
do Norway.....	536	68	110	85	56	28	Only half hardy.
do soft, A dasycarpun.....	76	29	2,000	1,443	50	38	Half hardy.
Pine, Scotch.....	258	37	175	129	24	10	Hardy.
do Austrian.....	439		120				
do Riga.....	67	16	500	30			Too young to transplant.
do mountain.....			150				do
Red cedar.....			100	7			do
Russian olive.....			100	76	50	26	Ornamental and hardy.
Russian mulberry.....			1,050	143			Kills back; doubtful.
Cottonwood.....	308	291	1,000	272	100	40	Northern grown; hardy and useful; southern, tender.

FOREST TREES—Continued.

	Planted.	Living.	Planted.	Living.	Present Height.	Season's Growth.	Remarks.
	1889.	1890.	1890.	1891.	Inch.	Inch.	
Spruce, Norway.	532	00	378	126	.....	.....	Not hardy.
do white.	65	25	75	62	21	10	Hardy.
do blue. ....	.....	.....	10	00	.....	.....
Russian poplars.	8	8	.....	.....	110	45	Hardy ; useful and ornamental.
do Pyramidalis.	1	1	.....	.....	.....	.....	Not hardy.
do certinensis.	5	4	.....	.....	102	44	Hardy ; useful and ornamental.
do Petrovsky.	36	36	.....	.....	100	33	do do
do bereolensis.	11	9	.....	.....	91	28	do do
do Wobstii Riga.	2	2	.....	.....	.....	.....	) Hardy and very early in the) spring.
do Siberica.	2	2	.....	.....	92	46	
do Aurea.	3	3	.....	.....	.....	.....	Not hardy.
do Alba Argenta.	2	2	10	10	50	34	A hardy white-leaved variety.
do bolleana.	2	2	.....	.....	58	42	Hardy and ornamental.
Russian Willow, Voronesh.	5	5	.....	.....	94	53	do wood, a golden colour, useful for trees.
do Acutifolia.	3	3	.....	.....	91	35	Hardy, quick-growing.
do basket.	7	7	2	2	100	95	do useful for hedge.
do Wisconsin. ....	.....	.....	.....	.....	.....	.....
do weeping.	8	8	.....	.....	96	72	Not hardy.
do Brityensis.	3	2	.....	.....	.....	Small.	do do
do Fragilis.	4	2	.....	.....	.....	do	do
do yellow.	7	7	.....	.....	69	39	Hardy ; ornamental for hedge.
do white.	7	7	.....	.....	66	37	Hardy.
do Norway and purple.	8	8	.....	.....	92	63	do
Symphoricarpus, snow berry. ....	.....	.....	3	2	.....	.....	A native shrub.
Viburnum opulus, snow ball. ....	.....	.....	3	3	27	10	Hardy.
do lantana. ....	.....	.....	4	4	.....	.....	do
Weigelia lavallei. ....	.....	.....	3	2	.....	.....	Half hardy.
Amelanchier, Canadensis. ....	.....	.....	2	2	.....	.....
do Alpinum. ....	.....	.....	2	1	.....	.....
Spirea opulifolia.	60	16	50	44	38	30	Hardy hedge plant.
do douglasii.	6	1	.....	.....	.....	.....	Hardy.
do van Houtte.	6	2	.....	.....	.....	.....	do
do prunifolia.	2	0	.....	.....	.....	.....
do bullata.	2	0	25	5	.....	.....	Hardy flowering plant.
do billardi.	6	6	.....	.....	.....	.....	Hardy.
do callosa.	3	1	.....	.....	.....	.....
do californica.	7	0	.....	.....	.....	.....
do nobleana.	2	2	.....	.....	.....	.....
do Superba. ....	.....	.....	10	4	.....	.....
do hypericifolia. ....	.....	.....	2	2	.....	.....	Hardy ; of weeping habit.
CLIMBERS. ....	.....	.....	.....	.....	.....	.....
Lycium European.	1	1	.....	.....	.....	84	Hardy.
Clematis Flammula.	7	3	.....	.....	.....	75	do
Rosa Rugosa.	1	1	.....	.....	22	14	do upright form.

SHRUBS and Ornamental Trees Planted in 1889 and 1890, with Number Living in Fall of 1891.

	Planted, 1889.	Living, 1891.	Planted, 1890.	Living, 1891.	Present Height.	Season's Growth.	Remarks.
Birch, cut-leaf weeping	3	2	..	..	11½ feet.	29 inch..	A valuable ornamental tree.
Asiatic maple (<i>Acer ginnala</i>)..	2	2	..	..	36 inch..	10 " ..	A hardy ornamental shrub.
Caragana	44	24	105	94	50 " ..	17 " ..	Very hardy and early.
Lilacs, vulgaris	4	4	10	10	32 " ..	11 " ..	Hardy.
do alba	77	65	8	7	31 " ..	18 " ..	
do josikea	1	1	..	..	..	Small..	
do de marley	4	3	17	17	28 inch..	8 inch..	
do purpurea	2	1	..	..	..	..
do rothamagensis	2	2	..	..	..	..	Hardy and ornamental.
Laurel-leaved willow	2	2	..	..	42 inch..	34 inch..	
Pyrus baccata aurantiaca . . .	1	1	..	..	36 " ..	22 " ..	do
Cornus Siberica	1	1	..	..	42 " ..	38 " ..	do
Artemisia (southernwood) . .	4	4	25	23	60 " ..	60 " ..	Hardy, early and quick growth.
Berberis, vulgaris	150	98	50	36	24 " ..	14 " ..	Useful for low hedge.
do elegans	12	..	..	..	..	..	Purple leaves, ornamental.
do purpurea . . . . .	..	..	30	13	..	..
Flowering currants	3	3	7	6	32 inch..	20 inch..	Hardy.
Cytisus capitatis	10	6	..	..	36 " ..	34 " ..	A hardy flowering shrub.
Deutzia candidissima . . . . .	..	..	7	3	..	..	Half hardy.

A LIST OF HARDY, HALF HARDY AND TENDER TREES.

As many enquiries are received from persons contemplating tree-planting, regarding different trees and shrubs, it is thought advisable to give a classified list, so as to show as near as can be given with present experience the relative hardiness of the trees and shrubs under trial here since 1889.

Hardy and Safe to Plant.	Half Hardy, of which a Percentage Live, but are Liable to Kill back.	Trees which Appear to be too Tender for Planting in this Province.
Ash, native, white and green.	Ash, red and black.	Black cherry.
American mountain ash.	European mountain ash.	Catalpa.
Alder (white) oak (native).	Alder (European), larch (European).	Hemlock.
Birch (all varieties) Scotch pine.	Arbor vitæ or white cedar.	Austrian pine.
Cottonwoods (northern grown).	American elm (imported).	Honey locust.
Native ash-leaf maple and white elm.	Norway and soft maples.	Black do
Russian poplars, <i>Bereolensis</i> , <i>certinensis</i> .	Cottonwoods (southern-grown).	Black walnut.
—, Petrovsky, <i>Sibirica</i> , silver	Russian poplars, <i>aurea</i> .	Rock elm.
leaf.	<i>Lindleyana</i> , <i>pyramidalis</i> , <i>bolleana</i> .	Russian mulberry.
Spruce, native, white.	Spruce, white (imported).	Sycamore.
Russian willows.	Wisconsin weeping willow.	Beech.
Asiatic maple (dwarf), <i>Acer ginnala</i> .	Kentucky coffee tree.	Black locust.
Caragana.	Norway spruce.	
Yellow flowering currant.		
Lilacs, barberry.		
Russian olive.		

A large quantity of native tree seeds were collected, and a part of them sown in the fall of 1890. Seeds of the native maple and ash germinated early in spring, but the seedlings were all killed by the spring frosts and cold winds.

As the same result was also experienced with maple and ash seed sown in the fall of 1888, it is evidently not advisable to sow these seeds in the fall or too early in the spring.

A quantity of oak nuts and other native tree seeds sown at the same time did not germinate till late in the spring, and a large number of seedlings from these were living when winter set in, but were too small to allow of an exact account being taken.

In May of this year another lot of maple seed was sown in rows 3 feet apart, and covered lightly with the plough; these germinated at once, with the result, that about 50,000 seedlings have been obtained from this sowing.

Seeing the hardness of the native trees, and realizing the importance of securing a large supply for the purpose of wind-breaks and for distribution, a large number of elm and other seedlings were procured in the fall of 1890, and of these 13,000 were sent to the Experimental Farm at Ottawa and Indian Head, and 5,000 were distributed amongst farmers in different parts of the province, in answer to applications from them.

In the spring of 1891 a further supply of seedlings of birch, spruce, etc., was secured from the bush near here, and, with the remainder of those gathered in the fall of 1890, were planted out in nursery rows. In addition to these, the most hardy and desirable of the Russian poplars and willows have been propagated so as to yield a large supply of cuttings, which, together with the native seedlings mentioned above, will form a stock available for planting and distribution during the coming season.

The following is a list of the tree seedlings raised from seed and otherwise procured during the past year :—

Maple, ash-leaf (native), grown from seed	51,955
Elm, white (native), transplanted from bush near river	9,773
Birch (native), transplanted from natural bush	2,100
Spruce (native) do do in sandhills	127
do seedlings (native), transplanted from natural bush in sandhills	569
Tamarack (native), transplanted from swamp	39
Buffalo berry, transplanted from river flats	128
do (seedlings), grown from seed	400
Cherry (Choke), transplanted from bush	11
do ground or sandhill, transplanted from sandhills ..	27
Oak, grown from seed	(about) 2,000
Virginia creeper or American ivy, transplanted from bush at Oak Lake	150
Russian willows, grown from cuttings ..	469
Caragana, grown from seed ..	2,000
Furze, Scotch do ..	100
Small fruits bushes from cuttings ..	100

Total number of trees, seedlings, etc., growing on the Experimental Farm in the fall of 1891, or grown from seed planted in—

	1889.	1890.	1891.	Total.
Forest trees and shrubs.	3,481	13,417	1,791	18,689
Native trees and seedlings.	4,073	14,731	69,950	88,754
Avenue trees				919
Large fruits, apples, etc.	343	574	74	991
Small fruits				1,963
				111,316

HEDGES FOR WIND-BREAKS.

In 1889 a hedge of ash-leaf maple was planted near the western boundary of the farm; this has now reached a height of 7 feet, and is found very useful in protecting more tender trees, shrubs, &c., from our severe south-west winds.

To thoroughly test the suitability of the different varieties of trees for this purpose, and to ascertain the proper distance to plant them, ten plots have under your directions been laid out, and several varieties of trees planted at varying distances around each plot. By this means it is expected that some light may be thrown on the question of suitable wind-breaks for this country.

AVENUE TREES.

The planting of avenue trees on the roads as far as made was completed this year by the setting out of 59 ash-leaf maples on the main avenue. I have pleasure in reporting that only one out of the 919 ash-leaf maple avenue trees planted on the farm died during the past year; all are in perfect health, and making a large growth each year.

As many enquires are made as to the proper manner of setting out large trees for avenue purposes, the method which has been adopted here will be given. Trees about six years old and 8 feet high were purchased from the nurseries near Brandon, but dug by our own men, so as to get as much root as possible, care being taken to protect the roots from wind and sun until planted. In planting, a hole a foot deeper than is actually required and somewhat larger than the roots require is dug; the bottom foot of the holes is then filled with surface soil, the tree planted and surface soil packed around the roots. Unless the season is unusually dry no water is used, but all weeds are kept down for 4 feet on each side of the trees. If the above method is adopted the loss should not in an ordinary season exceed 3 per cent.

FREE DISTRIBUTION.

Last winter a large number of applications for trees were received from farmers throughout the province.

In early spring over 20,500 trees and tree-cuttings were distributed by mail. They were sent in packages containing 100 trees, as follows :—

Variety.	Number.	Variety.	Number.
White elm, native.....	10 trees.	Artemesia Abrotans.....	5 cuttings.
Buffalo berry, native.....	2 do	Populus Pyramidalis.....	1 do
Ash-leaf maple do.....	10 do	do Petrovsky.....	1 do
Green ash do.....	10 do	do Lindleyana.....	1 do
White spruce do.....	10 do	Salix, 122 vor.....	7 do
Poplar Siberica.....	1 cutting.	Willows, Wisconsin weeping.....	7 do
do Nolesti.....	1 do	do Norway.....	7 do
do Beno.....	3 do	do Purple.....	1 do
do Certinensis.....	2 do	do Basket.....	1 do
do Bereolinsis.....	1 do	do Golden.....	1 do
do Wobstii Riga.....	1 do	do Yellow.....	1 do
do Alba Argenta.....	1 do	do Acutifolia.....	2 do
do Aurea.....	1 do	do Voronesh.....	5 do
do Bolleana.....	1 do	Northern cottonwood.....	6 do

EXPERIMENTS WITH VARIETIES OF CABBAGE.

As no test of the relative merits of the different varieties of cabbage for this climate had been published, it was thought advisable to test a number of the leading sorts. The seed of twenty-eight varieties was obtained last winter and sown in a hot-bed in early spring. The season here was very unfavourable for this vegetable and the returns small, but all were treated alike, and the experiment as a comparison of varieties may be considered fairly reliable.

EXPERIMENTS WITH CABBAGE.

Variety.	When ready for use.	Per-centage headed.	Average weight.	Remarks.
		Per cent.	Lbs.	
Marblehead Mammoth (Steele).....	Sept.	90	14	Large ; firm.
do (Robinson).....	do	90	13	do
Trotter's Early Drumhead.....	Aug. 20....	100	13	Very good ; firm.
Henderson Early Summer.....	do 5	100	12	Firm head.
Vandergaw.....	Sept.	90	12	Open head.
Late Drumhead.....	do	100	11½	Firm head.
Henderson's Succession.....	Aug. 7....	100	11	do
Quintal Drumhead.....	Sept.	100	9½	Open head.
Large Flat Dutch.....	do	90	9½	Firm head.
St. Denis.....	do	100	9	Open head.
Premium Flat Dutch	Aug. 10....	100	9	Firm head.
Early Jersey Wakefield	do 1....	90	9	do
All seasons	do 15....	90	9	do
Filderkraut.....	Sept.	60	6	Open head.
Early Winningstadt.....	Aug. 5....	70	6	Firm head.
Savoy Drumhead.....	Sept.	60	6	do
Early Sugar.....	Aug. 20....	60	5	Open head.
Early Etamps.....	July 26....	90	5	Head soft.
Early Deep Red.....	Sept. 10....	60	5	Firm.
Early Oxheart.....	July 26....	90	4½	Firm head.
Large Red Drumhead.....	Sept.	90	4½	Soft head.
Savoy Improved American.....	do	90	4½	Open head.
Savoy Green Globe.....	do	50	4½	Firm head.
Savoy Early Dwarf Ulm	Aug. 10....	90	3	do
Early York.....	July 26....	100	3	do
Savoy Early Dwarf.....	Aug. 25....	90	3	do
Scotch Kale.....	.....	.....	4	Good quality.
Brussels Sprouts.....	.....	.....	2 sprouts.	Open.

GARDEN PEASE.

Results of tests with garden varieties of pease. All varieties were sown on the same day, 8th April, side by side, in single rows, 3 feet apart; all had germinated and were growing by 20th April. No trellis or sticks were used :—

Varieties.	Ready for Use.	Length of Straw.	Pods.	Remarks.
Kentish Invicta.....	July 13..	Short.	Medium length and full.....	Yielded well.
Blue Peter.....	do 13..	20 inches..	Medium length and full.....	Yield heavy.
Extra Early.....	do 16..	24 do ..	Medium.....	Yield fair.
Little Gem.....	do 16..	Short.	Short and full.....	do
Stratagen.....	do 20..	24 inches..	Large and full.....	Good yield.
Pride of the Market.....	do 20..	20 do ..	do	Heavy yield.
Horsford's Market Garden.....	do 21..	20 do ..	Medium length.....	Good yield.
Yorkshire Hero.....	do 22..	24 do ..	do	do
Mummy Pea.....	do 22..	4 feet	Medium length and full.....	Very heavy yield; ripened 20th Aug.; made very strong growth during spring season.
Telephone.....	do 24..	3 do	Large pods but not well filled.....	Good yield.
Champion of England.....	do 28..	33 inches..	Large pods.....	do
Emperor.....	do 28..	30 do ..	Large and full.....	do
Laxton's Omega.....	Aug. 1..	24 do ..	Long do	Good yield; an excellent late variety, keeping green and sweet.
Grey Pease.....	Late.....	Long.....	Did not form	A novelty, but of no value here.

FLOWERS.

As very great interest has been taken by the majority of visitors in the cultivation of flowers, considerable attention has been given to the growth of hardy and popular flowering plants and bulbs, with the object of showing what plants and varieties are best adapted for successful cultivation in this province.

The result has been that from 24th April, when the first flower appeared until winter set in, some variety or other of plant or bulb was in flower the whole season, and during the months of August and September produced such a mass of bloom as to be a great source of attraction to visitors to the farm.

In the fall of 1890 a number of bulbs were procured and planted 4 inches deep, and the ground covered during the winter with about 6 inches of short manure.

The bulbs planted and the results were as follows:—

Scilla Amena.—Flowered 24th April and continued in flower two weeks.

Bulbocodium vernal.—Flowered 6th May to 20th May.

Tulips (single and double).—Flowered from 14th May to 10th June.

Lilium candidum.—Flowered from 15th July to 4th August.

Lilium tigrinum.—Flowered from 28th August to 8th September.

Iris Hispanica.—A few bulbs only; flowered during August.

Gladiolus Lemonei.—Planted 11th April; flowered 8th August.

Gladiolus gadavensis.—Planted 20th April; flowered 28th August to 15th September.

Paeonia Sinensis.—Grew well, but did not flower this season.

The following bulbs all started to grow, but gradually died off and did not flower: *Hyacinth*, single and double; *Colchicum autumnale*, *Crocus*, *Galanthus* or snowdrops, *Narcissus*, *Hemerocallis*.

The following plants are mentioned in the order in which they bloomed; those marked perennials were planted the previous summer, and had survived the winter out in the open.

Pansies (perennial).—A mass of bloom from 13th May till winter set in.

Linum perenne, or Flowering Flax.—Bloom from 15th May till winter set in.

Candytuft.—In flower from 19th June till winter set in.

Linaria Safforina.—In flower from 24th June till winter set in.

Sweet William (*Dianthus barbatus*) (perennial).—In flower 21st June; very showy.

Dianthus Imperialis (perennial).—In flower 24th June; a mass of bloom.

Dianthus Heddwigi do do 21st do do

Portulaca, *Mimulus Callirrhoe* and *Calliopsis*.—All came into flower in July.

Larkspur (*Delphinium*).—In flower 1st August; very showy.

Clarkia.—In flower 4th August till frost came.

Verbenas.—In flower 28th July till 25th October; very hardy.

Phlox Drummondii.—In flower 1st August to 15th October; very hardy and showy.

Petunias.—In flower 1st August to 20th September; very showy.

Marigolds.—In flower 6th August to 15th September; very showy but tender.

Stocks.—In flower July and August.

Antirrhinum (snap dragon).—In flower August and September; showy and hardy.

Chrysanthemum carinatum.—In flower August and September; succumbs to first frost.

Lobelia.—In flower July, August and September.

Double Daisy.—In flower do

Sweet Pease do do

Escholtzia's, white and yellow.—In flower August and September.

Aster's.—In flower 10th August to 30th September.

Salpiglosis.—In flower 16th August to 30th September; very showy.

Zinnia do 4th do very showy, but tender.

Balsams do 18th do do

Godetia do 20th July to August; very showy, but tender.

Mignonette do July to September.

Lupins.—Blooms very late; plants showy.

Gilia, *Cosmos*, *Aquilegia* and *Wallflower*.—Plants grew well, but did not bloom.

ROADS.

I take great pleasure in reporting that the grading and gravelling done in 1889 on the road running from east to west through the farm has proved a success, the very heavy traffic of the past year having no perceptible effect on it.

About 800 yards of additional grading and gravelling has been done during the past year on the avenues running north and south, and a number of culverts put in.

BUILDINGS.

The superintendent's house, mentioned in my last year's report as being finished, is now occupied, and the vacated building used as a boarding house for the employees on the farm. The new house is quite warm, and having an office attached is very convenient.

The horse and cattle stables in the basement of the barn are also warm and well adapted to the purposes intended. The upper portion of the barn is nearly all occupied with grain, leaving very little room for fodder, &c. A separate building for grain and implements is greatly needed.

EXHIBITIONS.

During the year just passed the following agricultural fairs were attended and samples of the products of the farm shown:—

Brandon summer fair was held on the 22nd and 23rd of July. This fair was a decided success, the weather being fine and the attendance large. Coming early in the season, only immature grain in the sheaf and threshed grain of the previous year could be shown, but opportunity was taken to make a large display of horticultural and arboricultural products of the farm, something impossible at the fall fairs. During the two days of this fair over 400 farmers visited the experimental farm.

At the Winnipeg industrial exhibition, held in Winnipeg in the week ending 3rd October, Mr. Angus Mackay, of the North-West Territory experimental farm, joined me in making a united exhibition of the products of the two farms. The exhibition was largely attended, and we were able to illustrate the work of the farms to a large number of people who would not have been easily reached by any other means.

Exhibits were also shown at Portage la Prairie and Neepawa fall fairs; at both places large numbers of farmers expressed an interest in the work of the farms.

SAMPLES OF EXHIBITS FOR THE EAST.

Besides the samples of farm products used at the several agricultural fairs in this province, a set of samples in the straw was sent to the Central Experimental Farm for exhibiting at some of the eastern fairs.

The Manitoba Government was also supplied with collections for the following purposes: one collection for exhibition purposes at Toronto and other eastern fairs; one for England, and another for their Winnipeg immigration office.

The work in connection with the preparation of these samples occupied the time of a portion of our staff during the busiest season of the year, but they will help to draw attention to the work of the farms, and will, I trust, also be useful in attracting immigrants to this province.

FARMERS' INSTITUTES.

A large number of invitations to attend meetings have been received by me from institutes throughout the province. It was found impossible, owing to press of work, to accept all of them, but the following meetings were attended and papers read: Wawanesa Institute, 6th February, "Some of the experiments undertaken by the Experimental Farms"; Wawanesa Institute, 20th February, "Varieties of Grain and manner of sowing them"; Brandon Institute, 23rd February, "Smut"; Bradwardine Institute, "Varieties of Wheats suitable for Manitoba"; Birtle Institute, "Some of the varieties of Grain tested on the Experimental Farms"; Alexander Institute, "Seed Grain and manner of sowing it"; Rapid City Institute, "Wheats for Manitoba"; Brandon Institute, "Fodder Plants for Manitoba"; Crystal City Institute, 30th June, "Grasses and Fodder Plants"; Brandon Institute, "Seed Grain." In many cases samples of grain, both threshed and in the straw, were shown at the meetings, which assisted materially in illustrating the work of the farm.

VISITORS TO THE FARM.

Judging by the largely increased number of visitors, the interest taken by the farmers of the province in the work of the experimental farm is in nowise abating. During the summer months of 1889 only 560 visited the farm; in 1890 the number reached 1,510, and in the same months this year 3,520; this is exclusive of the large number of Brandon citizens, many of whom visit it several times a week.

During the past year a number of the farmers' institutes organized excursions for the special purpose of examining the work on the farm, and over one hundred farmers from Portage la Prairie alone visited it at one time.

Every effort is made by the farm staff to explain the work being undertaken and to make all visitors welcome, and perhaps a better idea of the usefulness of the farm can be given by this means than by any other which could be devised.

The North-West Central Railway is now in operation from this place, and farmers living in the fine farming district to the north-west will have an opportunity of visiting the farm another year.

CORRESPONDENCE.

Not only has the number of visitors to the farm increased surprisingly, but the correspondence has also grown rapidly; from 467 letters received in 1889, and 842 in 1890, the number increased to 1,423 in the past year, and 1,468 letters were sent from the farm.

The building and equipping of an office on the farm has greatly assisted the carrying on of this department of the work.

I have the honour to be, Sir,

Your obedient servant,

S. A. BEDFORD,
Superintendent.

BRANDON, MAN., 26th January, 1892.

EXPERIMENTAL FARM FOR THE NORTH-WEST TERRITORIES.

REPORT OF A. MACKAY, SUPERINTENDENT.

INDIAN HEAD, N.-W. T., 31st December, 1891.

WM. SAUNDERS, Esq.,

Director Dominion Experimental Farms,
Ottawa.

SIR.—I have the honour to submit to you herewith my fourth annual report of the work done on the North-West experimental farm, being for the year 1891. The year just passed, like all its predecessors, has been exceptional. While some years have been dry, others dry and warm, this has been wet, cold and backward. The growth of straw over the whole country has been enormous; grain also has yielded very largely, and although a portion was partially injured by frost on the 12th September the quantity secured by every settler has never before been approached in the history of the North-West. Forty to fifty bushels of wheat and eighty to one hundred bushels of oats per acre are common returns, while in many instances these figures are exceeded.

Rains in June and July caused an immense growth of straw. The cool weather in August retarded the ripening process and the harvest consequently was later than usual. The crop was a very tedious one to take off, and the threshing is proving very expensive from the great amount of work to do. On the experimental farm, the result in grain-growing has not been as satisfactory as could be desired; heavy winds and a severe frost in the first week in May, after most of the early-sown grain was up, entirely destroyed a good many varieties of barley and oats and greatly injured many of the wheats, by thinning them to such an extent that ripening was delayed until frost came in September. Grain on summer fallow also was very late in ripening, on account of the large amount of moisture and cool weather during the growing season, and though all varieties not entirely destroyed returned good yields, except the Indian wheats, yet with many the sample is very poor.

For roots and vegetables the season has been favourable, though hardly long enough to secure a full crop of all kinds.

For tree culture last winter and spring were anything but favourable, but since May no season has ever caused such a good, healthy growth in young trees as the past one. While the large growth is often injurious and apt to cause their destruction by our winter cold or spring thaws and winds, it is hoped on account of many of the varieties ripening their wood well, the loss this winter will be less than usual. The winter of 1890-91 was especially fatal to almost everything in the tree line; even many of our native sorts, such as maple, ash, elm, &c., were badly cut back in seedlings and two-year-old trees, while foreign varieties, if not entirely killed, were cut back to the ground wholesale.

Special attention was given to fodder and grass cultivation during the past season, and although many failures ensued some successes have been obtained. Winds in many instances destroyed varieties of grass and a few mixtures sown for fodder, but many pulled through and gave gratifying returns.

In growing mixtures of grain for hay four important points require to be observed: 1st. To sow sufficiently thick to ensure the stalks not being too coarse. 2nd. To sow varieties together that head out or ripen at about the same time. 3rd. To cut early; and 4th. To allow plenty of time after being cut to properly cure. Two good mixtures are rye and 6-rowed barley, and 2-rowed barley and oats.

A fodder plant that has never failed on this experimental farm is rape. This year it exceeded all previous records. It must of course be used in a green state, either by pasturing or cut and fed green.

In Grain—Wheat was given a large acreage and more attention than any other cereal. Thirty-seven varieties were sown in plots or fields from $\frac{1}{16}$ acre up to 30 acres. Nine hybrids, besides 16 other varieties, were sown in small plots. Various experiments were made, including the sowing of two varieties each week for six weeks; sowing several sorts on same date under same conditions; sowing different quantities per acre; sowing at different depths; sowing by Press drill and broadcast; sowing several grades of frozen seed; different treatment for smut, &c. While some of these tests for various reasons were unsatisfactory, the attention of every settler is called to the result obtained from treating smutty seed with bluestone before sowing. I am told by a grain buyer that every 3rd bushel he buys is damaged by smut, and that to such an extent that while he pays 40 to 50 cents for frozen grain, this smutty wheat realizes to the grower only 30 to 35 cents. When it is considered that at a cost of a few cents per bushel seed can be successfully treated for this serious evil, it is reasonable to expect that no farmer will sow wheat next spring without being treated with bluestone. The season was favourable for poor seed, and the result of sowing frozen seed, as shown in test, should not be an inducement for settlers to sow their poor worthless grain. The good showing was caused by sufficient grains germinating in the favourable spring to cause the crop to be thick enough, but not to lodge, while in the better grades so much germinated that the crop was altogether too heavy, resulting in lodged straw and shrunken grain.

Ladoga wheat again this year proved early, although badly injured in May by winds. It was ripe, and cut ten days before Red Fife, and escaped all damage by frost, which the bulk of our Red Fife did not.

Two promising wheats were tried the past season: Campbell's White Chaff and Campbell's Triumph. The former, a soft variety, but much harder than last year, promised well during the entire season. The latter, a hard variety, though not so promising in the early stages as the White Chaff and some other varieties, gave the finest sample of grain on the farm.

The India wheats without an exception did poorly the past season. The winds and frosts in May had a far more injurious effect on them than on the Red Fife, and although sown on same date and everything in same condition, the India sorts had from one-third to one-half the young plants killed; the Red Fife had none.

The barley crop was greatly injured by winds in May. All sown prior to the 15th April was killed. That sown from 25th April to the 11th of May did best. Many of the wheat tests were repeated with barley. The Duck-bill variety proved, as in previous years, its adaptability for the North-West. It stands severe weather in spring, all sorts of weather in the growing months—June, July and August—and invariably gives the best yield when threshed. A variety called California Prolific, tried the past season for the first time on the experimental farm, proved very good. Straw heads and grain all point to this variety being the same as Duck-bill.

Oats suffered even more by winds and frost in May than the barley crop. Many varieties covering about fifty acres had to be re-sown with Feed oats. These gave a fine crop but were hurt by frost before being quite ripe. Prize Cluster though not first in yield is first in earliness and a first class oat, and is proving very successful wherever distributed in the North-West.

Pease were a very poor crop; while our field lots were entirely killed, the smaller plots were injured by winds and heavy dashes of rain flooding out portions of the plots.

In respect to these winds which injure us so greatly on the experimental farm, and which from reading this report may convey very erroneous impressions to any one not knowing the country, it may be said that the damage done to the generality of farmers is very small in comparison to that done on the experimental farm. On this farm nearly all sorts of grain are sown for trial on fallow very early in

the spring. Farmers only sow Red Fife, and it has been proven that Red Fife will stand sowing almost at any time. Again, three-fourths of the varieties of grain tested on the experimental farm are new or foreign sorts that cannot be expected to stand as well as Red Fife, the one variety almost universally sown all over the country. It is safe to say that if Red Fife, White Fife or any other proved variety was alone used on the Experimental Farm a very small proportion only of this injury would be done. Again, take oats. A farmer sows his oats in almost every case on stubble land which never is injured by wind, no matter how severe. On this farm we cannot use stubble land for any kind of grain and keep the sorts pure or give fair results from such a test, as the returns from such land would contain at least a portion of the preceding crop, as it is well known that fallen grain remains perfectly good until turned under the following spring, when it readily germinates. Other reasons might be given why the wind storms in spring are more injurious to crops on the experimental farm than to the country at large, and while it is not asserted that the farmer receives no damage, those who may read this report are asked to consider the wonderful crops raised in the North-West the past year, and in that year was experienced the most severe wind storms known for years.

SMUDGES.

For some years past smudges as a means of preventing grain being injured by frost have been believed in by many; others have found them ineffectual. To as thoroughly test this matter as it was possible to do, a circular flower garden, 100 feet in diameter, was chosen as being the most susceptible to frost, and a piece of ground that could be most easily and most effectually smudged. A pile of dry straw and coarse manure was heaped on the windward side of this garden. Two thermometers were placed in this plot, one in the centre, 2 feet above the ground, the other on the outer edge, on the ground; two other instruments were in their stand, 200 feet away, and out of the direct course of the smoke. On the night of the 12th of September everything indicated frost. At sundown the thermometer began to go down rapidly, and at nine o'clock 33 degrees was recorded. The smudges were at this point started, and for two and a-half hours one continual volume of smoke enveloped the garden. So dense was the smoke that when the thermometer in the centre of the garden was examined a lantern had to be used to find it. Every fifteen or twenty minutes all the instruments were examined, and no difference whatever was observed in any one of them. The smoke, on leaving the flower bed, enveloped or passed over a field of oats; these, with the flowers, were all frozen. You will remember when here on the 26th of August how rapidly the temperature fell on that evening, and that while you attended to the thermometers men and teams were piling up straw in heaps in a large field of grain containing between seventy and eighty experimental plots. These piles of straw, though happily not required that night, were on the 12th of September in the right place, and part of them added their gusts of smoke in the attempt to save the grain from injury. Unfortunately no house was in front of these piles as there was in front of the flower garden, and instead of settling over the plots the smoke took a direct line upwards, and was practically of no use.

The temperature fell on this occasion to 23, or 9 degrees of frost. Whether smoke with only three or four degrees of frost would be of any use is doubtful, though believed in by many. The fact of our four thermometers going down together seems to me to point to only one conclusion, namely, that smoke is ineffectual in saving grain from frost.

From the test made on the 12th September, I would strongly advise farmers not to place much reliance on smoke in saving their wheat, but rather to trust in good seed early sown.

WHEAT TESTS.

RESULT of sowing on different dates; one-tenth acre plots; 9 lbs. of seed (or at rate of 1½ bushels per acre); sown by drill; land in same condition.

Variety of Wheat.	Sown.	Came up.	Headed.	Ripe.	Matured in	Height.	Weight, Grain and Straw.	Weight per Bushel.	Yield per Acre.
					Days.				
White Connell	April 6	April 23	July 27	Sept. 14	161	4½	830	61½	34 00
	do 13	do 28	do 27	do 14	154	4½	740	61½	32 00
	do 20	May 3	do 27	do 14	147	4½	780	61½	32 50
	do 27	do 11	do 25	do 14	140	4½	955	61½	34 30
Campbell's White Chaff.	May 4	do 15	do 29	do 14	133	4½	805	60	32 30
	do 11	do 21	do 29	do 14	126	4½	835	60	33 00
	April 6	April 24	do 23	do 8	155	4½	845	63	30 26
	do 13	do 28	do 23	do 8	148	4½	800	63	35 30
	do 20	May 4	do 23	do 9	142	4½	855	63	34 00
	do 27	do 11	do 22	do 9	135	4½	935	63	37 46
	May 4	do 15	do 24	do 9	128	4½	870	62½	35 30
	do 11	do 21	do 24	do 9	121	4½	882	62½	36 10

RESULT of sowing different varieties on same date; half-acre plots; 1½ bushels per acre; sown by drill on fallow. All varieties, except Red Fife, were injured by wind in May. The Indian sorts were badly hurt.

Variety of Wheat.	Sown.	Came up.	Headed.	Ripe.	Matured in	Height.	Condition of Grain	Weight per Bushel.	Yield per Acre.
					Days.				
Gehun	April 13	April 28	July 16	Sept. 7	147	3½	Good...	65½	22 40
Club Bombay	do 13	do 28	do 16	do 7	147	3	do ..	60	24 30
Blue Stem	do 13	do 28	do 29	do 14	154	4½	Frozen..	54½	28 20
Green Mountain	do 13	do 27	do 29	do 14	154	4½	do ..	55½	24 48
Imp. Summer Cob.	do 13	do 27	do 28	do 14	154	4½	do ..	56½	30 16
Azima Russian	do 13	do 28	do 27	do 14	154	4½	do ..	57	31 16
Russian Ghirka	do 13	do 27	do 27	do 14	154	4½	do ..	59½	32 00
Old Red River	do 13	do 27	do 27	do 14	154	4½	do ..	57½	35 12
French Imperial	do 13	do 27	do 27	do 14	154	4½	do ..	55½	27 16
Colorado	do 13	do 24	do 24	do 14	154	4½	do ..	57½	33 36
Hard Red Calcutta	do 13	do 27	do 13	do 7	147	3½	Good...	63½	21 40
White Delhi	do 13	do 28	do 6	do 7	147	3	do ..	61½	22 00
Pringle's Champlain	do 13	do 24	do 25	do 12	152	4½	Frozen..	58	34 00
Red Fife	do 13	do 28	do 25	do 12	152	4½	do ..	60	38 20
Chilian White	do 13	do 28	do 24	do 14	154	4½	do ..	59½	29 36
Golden Drop	do 13	do 27	do 25	do 14	154	4½	do ..	57½	37 00
Red Connell	do 13	do 28	do 25	do 14	154	4½	do ..	57½	33 20
Karachi	do 13	do 26	do 16	do 11	151	3½	Good...	58	22 00
Assiniboia	do 13	do 27	do 23	do 14	154	4½	Frozen..	58	32 3½

RESULT of sowing different varieties on the same date; one-tenth acre plots; 9 lbs. seed; sown by drill; fallow land. Colorado destroyed by winds and the India varieties greatly injured.

Variety of Wheat.	Sown.	Came up.	Headed.	Ripe.	Matured in	Height.	Weight, Grain and Straw.	Weight per Bushel.	Yield per Acre.
					Days.	Feet.	Lbs.	Lbs.	Bush. lbs.
Campbell's White Chaff.	April 11	April 27	July 21	Sept. 5	147	4 $\frac{1}{2}$	730	63 $\frac{1}{2}$	33 56
Campbell's Triumph.	do 11	do 27	do 25	do 11	153	4 $\frac{1}{2}$	630	63 $\frac{1}{2}$	33 30
Red Fife.	do 11	do 27	do 25	do 12	154	4 $\frac{1}{2}$	810	62	44 20
White Fife.	do 11	do 27	do 27	do 12	154	4 $\frac{1}{2}$	750	62	39 20
Ladoga.	do 11	do 27	do 25	do 5	147	4 $\frac{1}{2}$	680	63 $\frac{1}{2}$	33 20
Anglo-Canadian.	do 11	do 27	Aug. 1	do 14	156	4 $\frac{1}{2}$	490	53 $\frac{1}{2}$	25 56
*Colorado	do 11	do 24							
Indian Hard Calcutta	do 11	do 27	July 16	do 5	147	3 $\frac{3}{4}$	482	63 $\frac{1}{2}$	27 10
Red Fern.	do 11	do 28	do 27	do 11	153	4 $\frac{1}{2}$	680	60 $\frac{3}{4}$	35 50
Judket.	do 11	do 28	do 27	do 11	153	4 $\frac{1}{2}$	698	61	32 40
Rio Grande.	do 11	do 28	do 27	do 12	154	4 $\frac{1}{2}$	590	60 $\frac{1}{2}$	30 00
Russian Hard Tag.	do 11	do 27	do 25	do 12	154	4 $\frac{1}{2}$	550	61 $\frac{1}{2}$	31 15
Saxonka.	do 11	do 28	do 25	do 12	154	4 $\frac{1}{2}$	690	60 $\frac{1}{2}$	32 30
White Delhi.	do 11	do 28	do 15	do 5	147	3	250	61 $\frac{1}{2}$	24 40
White Russian.	do 11	do 27	do 24	do 11	153	4 $\frac{1}{2}$	590	61 $\frac{1}{2}$	34 30
Wellman's Fife.	do 11	do 28	do 27	do 11	153	5	760	60	33 50
Pringle's Champlain	do 11	do 27	do 24	do 11	153	4 $\frac{1}{2}$	800	58	38 50
White Connell.	do 11	do 28	do 25	do 12	154	4 $\frac{1}{2}$	870	61 $\frac{1}{2}$	38 40
Defiance.	do 11	do 28	do 27	do 12	154	4 $\frac{1}{2}$	610	60	33 10
Australian.	do 11	do 28	do 23	do 12	154	4 $\frac{1}{2}$	695	61 $\frac{1}{2}$	38 30
Gehun.	do 11	do 27	do 16	do 5	147	3 $\frac{3}{4}$	300	65 $\frac{1}{2}$	34 40
Gennessee.	do 11	do 28	do 23	do 12	154	4 $\frac{1}{2}$	600	64	33 00

*Destroyed by winds.

RESULT of sowing at different dates; 1 $\frac{1}{2}$ bushels per acre; sown by drill on fallow.

FIELD PLOTS.

Variety of Wheat.	Sown.	Came up.	Headed.	Ripe.	Matured in	Height.	Weight per Bushel.	Yield per Acre.
					Days.	Feet.	Lbs.	Bush. lbs.
Ladoga.	April 6	April 23	July 21	Sept. 1	148	5	63 $\frac{1}{2}$	36 46
do	do 7	do 24	do 21	do 1	147	5	63 $\frac{1}{2}$	36 40
do	do 8	do 24	do 24	do 5	150	5	63 $\frac{1}{2}$	32 00
Red Fife.	do 6	do 24	do 25	do 11	158	4 $\frac{1}{2}$	62 $\frac{1}{2}$	51 10
do	do 7	do 25	do 25	do 11	157	4 $\frac{1}{2}$	62 $\frac{1}{2}$	48 10
do	do 8	do 27	do 28	do 11	156	4 $\frac{1}{2}$	62 $\frac{1}{2}$	48 10
White Fife.	do 11	do 27	do 28	do 12	154	4 $\frac{1}{2}$	62	33 00
White Connell.	do 11	do 25	do 28	do 12	154	4 $\frac{1}{2}$	61 $\frac{1}{2}$	39 40
Campbell's White Chaff.	do 17	May 1	do 23	do 4	140	4 $\frac{1}{2}$	63 $\frac{1}{2}$	52 00
Red Fern.	do 17	April 30	do 23	do 4	140	5	60 $\frac{1}{2}$	32 20
Eureka.	do 17	do 30	do 23	do 4	140	5	60	23 15

LADOGA vs. RED FIFE.

Sown same date: land fallowed, and in same condition and same quantity of seed.

Ladoga.	April 6	April 23	July 21	Sept. 1	148	5	63 $\frac{1}{2}$	36 46
do	do 7	do 24	do 21	do 1	147	5	63 $\frac{1}{2}$	36 40
do	do 8	do 24	do 24	do 5	150	5	63 $\frac{1}{2}$	32 00
do	do 11	do 27	do 25	do 5	147	4 $\frac{1}{2}$	63 $\frac{1}{2}$	33 20
Red Fife.	do 6	do 24	do 25	do 11	158	4 $\frac{1}{2}$	62 $\frac{1}{2}$	51 10
do	do 7	do 25	do 25	do 11	157	4 $\frac{1}{2}$	62 $\frac{1}{2}$	48 10
do	do 8	do 27	do 28	do 11	156	4 $\frac{1}{2}$	62 $\frac{1}{2}$	48 10
do	do 11	do 27	do 25	do 12	154	4 $\frac{1}{2}$	62 $\frac{1}{2}$	44 20

RESULT of sowing different quantities of seed per acre; land in same condition; one-tenth acre plots.

Variety of Wheat.	Quantity per Acre.	Sown.	Came up.	Headed.	Ripe.	Matured in.	Height.	Weight per Acre.	Yield per Acre.
Red Fife	1 bush.	April 17	May 2	July 24	Sept. 14	Days. 150	Feet. 4 $\frac{1}{2}$	Lbs. 61 $\frac{1}{2}$	Bush. lbs. 33 40
	1 $\frac{1}{2}$ do	do 17	do 2	do 24	do 14	150	4 $\frac{1}{2}$	61 $\frac{1}{2}$	34 10
	1 $\frac{3}{4}$ do	do 17	do 2	do 24	do 15	151	4 $\frac{1}{2}$	61	31 40
	1 $\frac{1}{4}$ do	do 17	do 2	do 24	do 15	151	4 $\frac{1}{2}$	60	29 15

RESULT of sowing different depths; same quantity of seed; land in same condition.

Variety of Wheat.	Depth.	Sown.	Came up.	Headed.	Ripe.	Matured in.	Height.	Weight per Acre.	Yield per Acre.
Red Fife	1 in.	April 17	May 2	July 24	Sept. 15	Days. 151	Feet. 4 $\frac{1}{2}$	Lbs. 61 $\frac{1}{2}$	Bush. lbs. 36 00
	2 in.	do 17	do 3	do 24	do 15	151	4 $\frac{1}{2}$	61	31 00
	3 in.	do 17	do 4	do 24	do 15	151	4 $\frac{1}{2}$	60	32 40
	4 in.	do 17	do 13	do 24	do 15	151	4 $\frac{1}{2}$	57	28 20

RESULT of different ways of seeding; same quantity; land in same condition.

Variety of Wheat.	Sown with.	Sown.	Came up.	Headed.	Ripe.	Matured in.	Height.	Weight per Bushel.	Yield per Acre.
Red Fife	Broadcast	April 17	May 4	July 28	Sept. 15	Days. 151	Feet. 4 $\frac{1}{2}$	Lbs. 57	Bush. lbs. 38 20
	Drill	do 17	do 4	do 24	do 15	151	4 $\frac{1}{2}$	58	32 40
	Press....	do 17	do 5	do 24	do 15	151	4 $\frac{1}{2}$	58	30 10

RESULT of different grades of seed sown; same quantity per acre; land in same condition; one-tenth acre plots.

Variety of Wheat.	Kind of Seed.	Sown.	Came up.	Headed.	Ripe.	Matured in.	Height.	Weight per Bushel.	Yield per Acre.
Red Fife	No. 1 hard ...	April 17	May 4	July 24	Sept. 12	Days. 148	Feet. 4 $\frac{1}{2}$	Lbs. 59	Bush. lbs. 32 40
	No. 1 frozen...	do 17	do 4	do 24	do 12	148	4 $\frac{1}{2}$	61	31 50
	No. 2 do ...	do 17	do 4	do 24	do 12	151	4	59	31 10
	No. 3 do ...	do 17	do 4	do 24	do 12	151	4	62	38 10

RESULT OF FALL PLOUGHING *vs.* FALLOW.

Red Fern.....	Fall ploughed.	April 17	May 3	July 23	Sept. 4	140	5	60 $\frac{1}{2}$	32 40
	Fallow	do 17	do 4	do 23	do 4	140	5	60 $\frac{1}{2}$	34 20

ROOT LAND *vs.* FALLOW.

Red Fife.....	Root land	April 8	April 24	July 25	Sept. 9	154	4 $\frac{1}{2}$	63 $\frac{1}{2}$	51 10
	Fallow	do 8	do 27	do 25	do 11	156	4 $\frac{1}{2}$	63	48 10

RESULT of cutting grain before being ripe. One-twentieth of an acre, in a field of five acres of Red Fife wheat, was cut on the 19th, of August, or 20 days before being ripe. Every fourth day, until ripe, the same quantity was cut. All were threshed and results carefully weighed, and are given below.

Variety of Wheat.	Sown.	Came up.	Headed.	Cut.	Before Matured.	Height.	Weight per Bush.	Yield per Acre.
					Days.	Feet.	Lbs.	Bush. lbs.
Red Fife.....	April 8	April 24	July 25	Aug. 19	20	4½	50	14 40
do				do 23	16	4½	51½	16 00
do				do 27	12	4½	54	25 20
do				do 31	8	4½	56	30 20
do				Sept. 4	4	4½	58	36 50
do				do 8	0	4½	63	42 10

RESULT of tests of cross-bred wheat produced by Prof. Wm. Saunders at the Central Experimental Farm, Ottawa. The returns obtained were very fine samples.

Variety of Wheat.	Bald or Bearded	Sown.	Quantity Sown, Kernels.	Came up.	Quantity came up, Kernels.	Quantity Killed after coming up, Kernels.	Ripe.	Height.	Matured in.	Cross between.	Yield.
								Feet.	Days.	Female. Male.	Lb. oz.
Alpha.....	Bald ...	April 21	48	May 9	33	6	Sept. 1	4½	134	Ladoga...WhiteFife	0 9
Beta.....	Bearded	do 21	50	do 9	42	12	do 2	4½	135	do ...Red	0 9
Abundance..	do	do 21	48	do 9	30	10	do 5	4½	138	do ...do	0 6
Prince.....	do	do 21	50	do 9	37	3	do 4	4½	137	do ...White	1 1
Ottawa.....	do	do 21	50	do 9	36	0	do 4	4½	137	do ...Red	1 2
Carleton....	do	do 21	50	do 9	36	1	do 4	4½	137	do ...White	0 13

RESULT of treatment for Smut, one-tenth acre plots. Treatment:—1 lb. bluestone, dissolved in warm water; 1 pail of water added, and mixed with 10 bushels of wheat. Same quantity bluestone and one-half the quantity of water, mixed with 5 bushels of wheat. Seed all black with smut. Six feet square of each plot cut and every head counted.

Variety of Wheat.	Quantity Blue stone.	Quantity Wheat.	Sown.	Came up.	Headed.	Ripe.	Matured in.	Height.	Pure Heads.	Smut Heads.	Weight per Bush.	Yield per Acre.
	Lbs.	Bush.					Days.	Feet.			Lbs.	Bush.
Red Fife....	1	5	April 17	May 3	July 24	Sept. 12	148	4½	2,038	17	62	32 00
do	1	10	do 17	do 6	do 24	do 12	148	4½	1,789	270	61	29 30
do	Untreated...		do 17	do 3	do 24	do 12	148	4½	1,011	1,010	57	24 10

RESULT of Treatment for Smut, plots 10 feet square. These wheats were sent to Ottawa and treated by F. T. Shutt, M.A., Chemist of Experimental Farm. All were more or less affected with smut, the Judket badly so. Every head in each plot was counted.

Variety of Wheat.	How Treated.	Sown.	Came up.	Headed.	Ripe.	Matured in.	Pure Heads.	Smut Heads.
						Days.		
White Connell.....	Untreated.....	Apl. 8.	Apr. 25.	July 18.	Sept. 10.	155	3,479	6
do.....	Sulphate of copper.....	do 8.	do 25.	do 18.	do 10.	155	3,423	7
do.....	Agricultural bluestone.....	do 8.	do 25.	do 18.	do 10.	155	3,942	3
do.....	Sulphate of iron.....	do 8.	do 25.	do 18.	do 10.	155	3,575	6
Red Fife.....	Untreated.....	do 8.	do 25.	do 20.	do 12.	157	3,789	164
do.....	Sulphate of copper.....	do 8.	do 25.	do 20.	do 12.	157	4,420	1
do.....	Agricultural bluestone.....	do 8.	do 25.	do 20.	do 12.	157	3,973	7
do.....	Sulphate of iron.....	do 8.	do 25.	do 20.	do 12.	157	3,722	168
White Fife.....	Untreated.....	do 8.	do 23.	do 20.	do 12.	157	3,696	10
do.....	Sulphate of copper.....	do 8.	do 23.	do 20.	do 12.	157	3,840	0
do.....	Agricultural bluestone.....	do 8.	do 23.	do 20.	do 12.	157	3,810	0
do.....	Sulphate of iron.....	do 8.	do 23.	do 20.	do 12.	157	3,595	2
Judket.....	Untreated.....	do 8.	do 23.	do 18.	do 15.	160	3,905	49
do.....	Sulphate of copper.....	do 8.	do 23.	do 18.	do 15.	160	3,761	1
do.....	Agricultural bluestone.....	do 8.	do 23.	do 18.	do 15.	160	3,850	0
do.....	Sulphate of iron.....	do 8.	do 23.	do 18.	do 15.	160	3,960	38

RESULT of Grain sown in fall. Fall wheat, spring wheat and rye sown in fall, 1890.

Variety of Wheat.	Fall or Spring Grain.	Sown.	Came up.	Headed.	Ripe.	Weight per Bushel.	Yield per Acre.	Remarks.
						Lbs.	Bus. lbs.	
Canadian Velvet Chaff.....	Fall.....	Oct. 27.	Apr. 20.	July 24.	Sept. —	55	.....	Cut Sept. 12, but not ripe; frozen; 3 lbs. sown, 20 lbs. yield.
Saxonka.....	Spring.....	do 27.	do 24.	do 24.	do 12.	60½	20 27	
Giant Reading Rye.....	Fall.....	do 27.	do 24.	do 24.	do 12.	54½	.....	3 lbs. sown; 70 lbs. return.

The following varieties of fall and spring wheats sown the past fall, 1891, will be reported on in next annual report:—

Variety.	Sown.	Came up.
Early Red Clawson.....	September 9....	September 19.
Jones's Winter Fife.....	do 9....	do 19.
Tasmania.....	do 9....	do 19.
<i>Fall Wheats.</i>		
Martin's Amber.....	do 9 ..	do 22.
Golden Cross.....	do 9....	do 22.
Early Red Clawson.....	October 28....	Did not germinate.
Canadian Velvet Chaff.....	do 28....	
Royal Prize.....	do 28....	
<i>Spring.</i>		
Democrat.....	do 28....	
Manchester.....	do 28....	
Ladoga.....	do 28....	

BARLEY TESTS.

RESULT of sowing at different dates; one-tenth acre plots. Two varieties of barley were sown on 6th April, and continued each week up to 11th May. The first two sowings were destroyed by wind and frost, and the third a good deal injured. The condition of land, quantity of seed ($9\frac{1}{2}$ lbs.), &c., were exactly the same; land fallowed year previous; crop very heavy, but badly lodged.

Variety of Barley.	Sown.	Came up.	Headed.	Ripe.	Matured in.	Height.	Weight, Grain and Straw.	Weight per Bushel.	Yield per Acre.
					Days.	Feet.	Lbs.	Lbs.	Bush. lbs.
Prize Prolific.....	April 6	April 23	Destroyed by frost and winds.						
	do 13	do 27							
	do 20	May 2							
	do 27	do 9							
	May 4	do 13							
	do 11	do 19	do 22	do 2	114	$3\frac{3}{4}$	680	$53\frac{1}{4}$	50 40
Baxter's Six-rowed	April 6	April 23	Destroyed by frost and winds.						
	do 13	do 27							
	do 20	May 1							
	do 27	do 9							
	May 4	do 13	do 18	do 27	115	4	589	$53\frac{1}{2}$	44 18
	do 11	do 19	do 18	do 27	108	$3\frac{3}{4}$	660	$53\frac{1}{2}$	50 10

RESULT of sowing different varieties on same date; one-half acre plots; land fallowed; same quantity seed sown, $1\frac{3}{4}$ bushels per acre.

Variety of Barley.	Sown.	Came up.	Headed.	Ripe.	Matured in.	Height.	Weight per Bushel.	Yield per Acre.
					Days.	Feet.	Lbs.	Bush. lbs.
Peerless	April 15	April 27	July 24	Sept. 9	147	$4\frac{1}{2}$	54	36 21
Danish Chevalier.....	do 15	do 28	do 24	do 9	147	$4\frac{1}{2}$	52	44 20
Danish Printice Chevalier	do 15	do 28	do 24	do 9	147	$4\frac{1}{2}$	52	40 00
Prize Prolific	do 15	do 28	do 24	do 9	147	$4\frac{1}{2}$	$53\frac{3}{4}$	45 00
Thanet	do 15	do 28	do 24	do 9	147	$4\frac{1}{2}$	$52\frac{3}{4}$	49 00
Golden Melon, 2-rowed.....	do 15	do 28	do 24	do 9	147	$4\frac{1}{2}$	54	42 10
Selected Chevalier, 2-rowed.....	do 15	do 28	do 24	do 9	147	4	54	50 36
Duck-bill, 2-rowed.....	do 15	do 28	do 17	do 1	139	5	$50\frac{3}{4}$	60 00
New Zealand, 2-rowed.....	do 15	do 28	do 18	do 2	140	4	$52\frac{1}{4}$	37 18
Sharp's Improved.....	do 15	do 28	do 22	do 9	147	4	53	47 10
Large 2-rowed Naked	do 15	do 28	do 14	do 2	140	$3\frac{1}{2}$	$63\frac{1}{4}$	26 35
Mensury, 6-rowed	do 15	do 28	do 17	do 2	140	$4\frac{1}{4}$	$50\frac{1}{4}$	43 00
Rennie's Improved, 6-rowed.....	do 15	do 28	do 18	do 2	140	$4\frac{1}{4}$	$51\frac{3}{4}$	46 33
Spiti Valley Feed	do 15	do 28	do 4	Aug. 11	118	$3\frac{1}{2}$	$57\frac{1}{4}$	24 33

Eighteen plots of one-tenth acre each were sown on the 13th April, on fallowed land, with a similar quantity of seed per acre. The grain came up on the 27th and 28th of April, but they were destroyed by wind and frost during the first week of May.

RESULT of sowing at different dates ; land fallowed ; $1\frac{3}{4}$ bush. seed per acre ; field plots.

Variety of Barley.	No. Acres Sown.	Sown.	Came up.	Headed.	Ripe.	Matured in.	Height.	Weight per Bushel.	Yield per Acre.
						Days.	Feet.	Lbs.	Bush. lbs.
Duck-bill	3	April 8	April 23	July 24	Sept. 3	147	5	53 $\frac{3}{4}$	43 10
Chevalier.	1	do 15	do 30	do 27	Aug. 31	137	4 $\frac{1}{2}$	50 $\frac{3}{4}$	37 10
California Prolific.	1	do 27	May 13	do 15	do 27	121	5	53 $\frac{1}{4}$	65 00

Eight other varieties were sown on the 14th, 15th and 16th April, but all were so badly injured in May as to be of no value for comparison ; similar results attended the sowing of Duck-bill barley, where different quantities of seed were sown per acre, varying from $1\frac{1}{4}$ to 2 bushels.

RESULT of different methods of seeding land fallow ; $1\frac{3}{4}$ bush. per acre ; one-tenth acre plots.

Variety of Barley.	How Sown.	Sown.	Came up.	Headed.	Ripe.	Matured in	Height.	Weight per Bushel.	Yield per Acre.
						Days.	Feet.	Lbs.	Bush. lbs.
Duck-bill	Broadcast	April 17	May 4	July 24	Sept. 15	151	4 $\frac{3}{4}$	53	42 00
	Drill	do 17	do 4	do 24	do 7	143	5	53	32 44
	Press.	do 17	do 4	do 24	do 7	143	5	53	35 30

FALLOW vs. ROOT LAND.

Duck-bill	Kind of land—									
	Root	April 8	April 23	July 24	Aug. 31	144	5	53	43	10
	Fallow	do 15	do 28	do 17	Sept. 1	139	5	53 $\frac{1}{4}$	60	00

SPRING PLOUGHING vs. FALLOW.

Chevalier.	Kind of land—									
	Spring ploughed.	April 15	April 30	July 27	Aug. 31	131	4 $\frac{1}{2}$	50 $\frac{3}{4}$	37	16
	Fallow	do 15	do 30	do 24	Sept. 9	147	4 $\frac{1}{2}$	52	44	20

EARLY vs. LATE SEEDING.

Prize Prolific. ....	.....	April 6	April 23	} Destroyed by frost and winds.						
	.....	do 13	do 27							
	.....	do 20	May 2	July 22	Sept. 2	135	4 $\frac{1}{2}$	53 $\frac{1}{4}$	40	30
	.....	do 27	do 9	do 20	do 2	128	4	53 $\frac{3}{4}$	54	28
	.....	May 4	do 13	do 22	do 2	121	4	53 $\frac{1}{4}$	54	00
	.....	do 11	do 19	do 22	do 2	114	3 $\frac{3}{4}$	53 $\frac{1}{4}$	50	40
	.....	June 2	June 10	Aug. 5	Aug. 15	105	3 $\frac{1}{2}$	49	38	00

OAT TESTS.

Thirty-two varieties of oats were sown; all but 12 of these were destroyed by wind. The only kind not injured was Winter Grey; all those sown previous to the 16th April were too much injured to admit of comparison.

RESULT of sowing at different dates; fallow land; sown with drill, $8\frac{1}{2}$ lbs. seed used, equal to $2\frac{1}{2}$ bush. per acre; one-tenth acre plots.

Variety of Oats.	Sown.	Came up.	Headed.	Ripe.	Matured in	Height.	Weight, Grain and Straw.	Weight per Bushel.	Yield per Acre.
					Days.	Feet.	Lbs.	Lbs.	Bush. lbs.
Prize Cluster	April 6	April 27	Destroyed by frost and winds.						
	do 13	May 4							
	do 20	do 7							
	do 27	do 12							
	May 4	do 16							
	do 11	do 21	do 25	do 1	113	5	835	48 $\frac{3}{4}$	86 20
Banner.	April 6	April 26	Destroyed by frost and winds.						
	do 13	May 4							
	do 20	do 7							
	do 27	do 12							
	May 4	do 16	do 27	do 7	126	5 $\frac{1}{4}$	950	43 $\frac{1}{4}$	84 22
	do 11	do 21	do 27	do 7	119	5 $\frac{1}{4}$	840	42 $\frac{1}{4}$	77 22

RESULT of sowing different varieties on same date; fallow land; sown by drill; $2\frac{1}{2}$ bush. per acre; one-tenth acre plots.

Variety of Oats.	Sown.	Came up.	Headed.	Ripe.	Matured in.	Height.	Weight per Bushel.	Yield per Acre.
					Days.	Feet.	Lbs.	Bush. lbs.
Winter Grey.	April 17	May 4	July 20	Aug. 27	131	5	46 $\frac{1}{2}$	102 00
Early Gothland	May 4	do 21	do 24	Sept. 10	122	4 $\frac{1}{2}$	44 $\frac{1}{2}$	51 00
Archangel	April 17	do 4	do 24	do 1	136	4 $\frac{1}{2}$	40	61 00
Swedish.	do 17	do 4	do 30	do 19	155	4 $\frac{1}{2}$	39	60 00
Bonanza	do 17	do 4	do 30	do 2	137	4 $\frac{1}{2}$	47	72 22
Am Beauty.	do 17	do 4	do 30	do 10	146	4 $\frac{1}{2}$	42 $\frac{1}{4}$	89 16
Rosedale	do 17	do 4	Destroyed by winds.					
White Russian.	do 17	do 4						
Black Champion.	do 17	do 4						

RESULT of sowing at different dates; fallow land; $2\frac{1}{2}$ bush. per acre; field plots.

Variety of Oats.	Sown.	Came up.	Headed.	Ripe.	Matured in.	Height.	Weight per Bus.	Yield per Acre.
					Days	Feet	Lbs.	Bush. lbs.
Cream Egyptian	May 13	May 23	July 29	Sept. 8	118	5	45 $\frac{3}{4}$	86 00
Welcome.	do 13	do 22	do 25	do 3	113	5	44 $\frac{3}{4}$	78 18
Black Tartarian	do 25	June 8	Aug. 3	do 17	115	5	41	89 20
Potato	do 25	do 8	do 3	do 10	108	5	44	80 00
Black Tartarian	do 29	do 10	do 7	do 18	112	5	41	89 00

RESULT of sowing different quantities per acre; land fallowed; one-tenth acre plots.

Variety of Oats.	Quantity per Acre.	Sown.	Came up.	Headed.	Ripe.	Matured in	Height.	Weight per Bush.	Yield per Acre.
						Days	Feet	Lbs.	Bush. lbs.
Prize Cluster	1½ bushels	April 17	May 4	Destroyed by winds.					
do	2 do	do 17	do 4						
do	2½ do	do 17	do 4	July 24	Sept. 10	146	4½	48½	85 24
do	3 do	do 17	do 4	do 24	do 9	145	4½	47½	80 10

RESULT of different methods of sowing; fallow land; 2½ bush. per acre; one-tenth acre plots.

Variety of Oats.	How Sown.	Sown.	Came up.	Headed.	Ripe.	Matured in	Height.	Weight per Bush.	Yield per Acre.
						Days	Feet.	Lbs.	Bush. lbs.
Prize Cluster	Broadcast ..	April 17	.....	Destroyed by winds.					
do	Drill	do 17	May 6	July 24	Sept. 7	143	5	48	79 16
do	Press	do 17	do 4	Destroyed by winds.					

STUBBLE VS. FALLOW.

Cream Egyptian was sown on stubble and fallow. That on fallow was destroyed. On stubble drilled in it yielded 86 bush. per acre on 5 acres.

TESTS OF DIFFERENT VARIETIES SOWN ON SAME DATE.

Land fallowed; sown with drill, 2½ bush. per acre; one-tenth acre plots. Twenty-five different plots were included in this test. All were sown on the 14th April; were up from the 27th April to 1st May, but all were too much injured by wind and frost in first week in May to admit of comparison.

PEA TEST.

Pease, like the barley and oats, were greatly damaged by the winds. The field lots were entirely killed. The one-tenth acre plots were somewhat protected by buildings and did not suffer so much, but were subsequently injured by heavy rains which flooded part of the plots.

RESULT of sowing on same date; land fallowed and in good condition. Black Eyes and White Marrowfat, sown at the rate of 3 bushels; the remainder, 2½ bushels per acre; one-tenth acre plots.

Variety.	Sown.	Came up.	Podded.	Ripe.	Matured in	Length of Straw.	Weight per Bushel.	Yield per Acre.
					Days.	Feet.	Lbs.	Bush. lbs.
Black Eyes.....	April 17..	May 11..	July 28..	Sept. 5..	141	4½	65	19 40
Multiplier	do 17..	do 11..	Aug. 4..	do 5..	141	5	64½	18 30
Extra Early.....	do 17..	do 11..	July 18..	Aug. 21..	126	3¾	64	15 04
Prince Albert.....	do 17..	do 11..	Aug. 1..	Sept. 5..	141	6	64	25 00
White Marrowfat.....	do 17..	do 11..	July 24..	do 5..	141	4	65	21 40
Crown.....	do 17..	do 11..	Aug. 1..	do 5..	141	6	65½	30 10
Prussian Blue.....	do 17..	do 11..	July 28..	do 5..	141	6	65	24 00
Mummy.....	do 17..	do 11..	Aug. 1..	do 2..	138	4	65½	20 37

FODDER TESTS.

Five mixtures of grain were sown on fallow, 6th April. Five mixtures and rye alone were sown on stubble land on 16th and 18th April. Three of those sown on fallow were destroyed, and re-sown 1st June. The yield of cured hay in each case is given.

RESULT of sowing on fallow; seed drilled in.

Fodder.	Sown.	Came up.	Cut.	Remarks.
Wheat and rye.....	April 6..	April 24..	Aug. 10..	Yield per acre, 8,000 lbs. do 7,900 do
Oats and pease.....	do 6..	do 24..	do 10..	
Rye and barley.....	do 6..	do 24..	.....	) Re-sown with barley and oats 1st June; cut, 10th August; yield, 5,200 lbs.
Barley and oats.....	do 6..	do 24..	.....
Oats and rye.....	do 6..	do 24..	.....

RESULT of sowing on fall ploughing, spring ploughing (gang ploughed), and on stubble randed in.

Fodder.	Sown.	Came up.	Cut.	Remarks.
Wheat and oats, fall ploughed.	April 18..	May 1..	Aug. 6..	Yield, 4,700 lbs. per acre.
do spring do ..	do 18..	do 1..	do 6..	do 6,200 do
do randed	do 18..	do 1..	do 6..	do 6,000 do

RESULT of sowing on spring ploughing; stubble land; stubble burned; seed gang-ploughed in.

Fodder.	Sown.	Came up.	Cut.	Remarks.
Oats and rye.....	April 16..	May 1..	Aug. 6..	Yield, 6,900 lbs. per acre.
Wheat and oats.....	do 16..	do 1..	do 3..	do 7,200 do
Pease and oats.....	do 18..	do 1..	do 5..	do 7,000 do
Rye and barley.....	do 18..	do 1..	do 3..	do 5,200 do
Rye, wheat and oats.....	do 16..	do 1..	do 4..	do 5,640 do
Rye.....	do 18..	do 1..	do 4..	do 4,830 do

RESULTS of Millets and Rape sown on fallow; cut and put in silo green.

Variety.	Sown.	Came up.	Cut.	Remarks.
Common Millet.....	June 2...	June 15....	Aug. 18....	Yield, 6,000 lbs. per acre.
German do	do 2....	do 15....	do 18....	do 6,230 do
Hungarian Grass	do 2....	do 15....	do 18....	do 2,940 do
Rape	do 3....	do 12....	do 29....	do 24,000 do
Chana.....	do 18....	do 26....	.....	Attained a height of 3 feet when frozen on Sept. 12.
Marsa.....	do 18....	do 26....	.....	6 inches high when frozen on Sept. 12.

FODDER CORN.

Thirty-one varieties of corn were sown by drill in rows of 3 feet apart for fodder. The land was fallowed the year before, and in good condition. All the sorts came up well, except Dakota Gold Coin, the seed of which was bad. When about 6 inches high, cold, wet weather set in and the plants continued to make slow pro-

gress until the end. For fear of frost the corn was cut on 7th September, and put in silo in a green state. The weight per acre is computed from two rows of each sort, 66 feet long in green state. North Dakota and Red Blazed gave much the best yield; both seemed to stand the cool nights better than the other sorts.

Variety.	Sown.	Came up.	Tas- selled.	Silk.	Early Milk.	Cut.	Height.	Yield per Acre.
							Pt.	Tons. lbs.
Blunt's Prolific.....	May 23.	June 15.				Sept. 7.	7 4½	8 720
Golden Dent.....	do 23.	do 15.				do 7.	7 5	9 920
Chester Co. Mammoth.....	do 23.	do 16.				do 7.	7 3	5 450
Virginia Horse Tooth.....	do 23.	do 18.				do 7.	7 3½	4 360
Golden Beauty.....	do 23.	do 16.				do 7.	7 4	6 540
Mammoth Southern Sweet.....	do 23.	do 15.				do 7.	7 4½	4 1900
Giant Prolific Ensilage.....	do 23.	do 16.				do 7.	7 4½	8 1380
Salzer's Superior Fodder.....	do 23.	do 16.				do 7.	7 3½	5 1990
King Philip.....	do 23.	do 17.	Aug. 18.			do 7.	7 4½	8 60
Longfellow.....	do 23.	do 15.	Sept. 2.			do 7.	7 4½	9 1140
Long White Flint.....	do 23.	do 17.	Aug. 18.			do 7.	7 4½	6 1200
Long Yellow Flint.....	do 23.	do 17.	Sept. 2.			do 7.	7 4½	7 1180
Thoroughbred White Flint.....	do 23.	do 17.	do 2.			do 7.	7 4½	7 1400
Early Yellow Dutton.....	do 23.	do 15.				do 7.	7 3½	7 1950
Canada Yellow.....	do 23.	do 15.	Sept. 2.			do 7.	7 3½	6 1330
Pearce's Prolific.....	do 23.	do 17.	do 2.			do 7.	7 3½	5 450
Mitchell's Early.....	do 23.	do 15.	Aug. 3.	Aug. 10.	Sept. 2.	do 7.	7 3½	4 1460
Yellow Flint.....	do 23.	do 15.	do 13.	Sept. 2.		do 7.	7 4½	7 1180
North Dakota.....	do 23.	do 15.	do 18.	do 2.		do 7.	7 5	10 1670
Dakota Gold Coin.....	do 23.	do 22.				do 7.	7 3½	3 270
Eight-rowed Sugar.....	do 23.	do 17.				do 7.	7 3½	6 210
Egyptian.....	do 23.	do 18.				do 7.	7 3½	6 870
Extra Early Cory.....	do 23.	do 17.	Aug. 3.	Aug. 10.	Sept. 2.	do 7.	7 3½	6 1310
Pea & Kay.....	do 23.	do 15.	do 18.	Sept. 2.		do 7.	7 4½	6 1090
Early Mammoth.....	do 23.	do 18.				do 7.	7 3½	5 1330
Asylum Sweet.....	do 23.	do 17.				do 7.	7 3	5 670
Potter's Excelsior.....	do 23.	do 20.				do 7.	7 3½	6 650
Stowell's Evergreen.....	do 23.	do 15.	Sept. 2.			do 7.	7 3½	5 670
Cinquantine.....	do 23.	do 18.	Aug. 18.	Sept. 2.		do 7.	7 3½	5 1220
Red Blazed.....	do 22.	do 15.	do 18.			do 7.	7 5½	10 20
Red Cob Ensilage.....	do 23.	do 15.				do 7.	7 4½	5 1990

CORN.

Fourteen varieties were planted on a piece of ground that had been fallowed and well manured, with a view of testing their earliness. Everything was done possible to force the plants, in the way of hoeing and cultivating. No weight is given of the yield, as the frost on 12th September was severe enough to cut the corn to the ground.

Variety.	Sown.	Came up.	Tasselled.	Silk.	Early Milk.
Squaw Corn.....	May 19.	June 8.	July 30.	Aug. 3.	Sept. 2
Yellow Flint.....	do 19.	do 10.	do 30.	do 3.	do 2
White Flint.....	do 19.	do 10.	Aug. 3.	do 3.	do 2
Mitchell's Extra Early.....	do 19.	do 10.	do 3.	do 10.	do 2
Extra Early Cory.....	do 19.	do 12.	do 3.	do 10.	do 2
Mammoth Southern Sweet.....	do 19.	do 12.			
Pearce's Prolific.....	do 19.	do 15.	Aug. 18.		
Perry's Hybrid.....	do 19.	do 20.	do 18.		
Red Blazed.....	do 19.	do 20.	do 18.	Sept. 2.	
Giant Prolific.....	do 19.	do 20.			
Large Eight-rowed.....	do 19.	do 20.			
Potter's Excelsior.....	do 19.	do 20.			
Asylum Sweet.....	do 19.	do 20.	Sept. 2.		

EXPERIMENTS WITH BUCKWHEAT, FLAX AND RYE.

Variety.	Sown.	Came up.	Headed.	Cut.	Weight per Bushel.	Yield per Acre.
					Lbs.	Bush.lbs
Rye.. .. .	April 6..	April 20..	June 22..	Aug. 25..	56	27 00
Buckwheat.	June 3..	June 12..	.....	Sept. 7..	54	19 17
Flax.	do 3..	do 12..	.....	do 15..	.....	14 00

GRASSES AND CLOVERS.

A good deal of attention was given to this important subject the past season; besides sowing in small plots at different times and in different ways, larger plots were sown in the fields, both on bare land and with grain. Many of the small plots were blown out, and a good deal of that sown among the grain was injured, but on the whole the season has been the most favourable one since the farm started for a fair catch.

Nineteen varieties of cultivated grasses and clovers and 33 native grasses were sown in small plots 10 feet square. Meadow Fescue, sown 16th April, was 3 feet high when cut on 3rd September; Orchard Grass, 2 feet 9 inches; Meadow Oat Grass, 3 feet 2 inches; Perennial Rye, 20 inches; Timothy, 23 inches; Bromus inermis, 38 inches, and Red, Mammoth and Scarlet Clovers, 20 inches; Native grasses sown in April, cut on 3rd September, were: Bromus segetum, 26 inches; Bromus ciliatus, 27 inches; Bromus Pampellianus, 36 inches; Elymus Canadensis, 36 inches; Muhlenbergia sylvatica, 18 inches; Muhlenbergia glomerata, 22 inches; Muhlenbergia Mexicana, 24 inches. All the above native sorts are very fine grasses and well worthy of cultivation.

The following, sown in spring of 1889, were cut for hay 1890, and the past season gave as follows:—

Timothy, 4,800 lbs. per acre of cured hay; Meadow Fescue, 4,600 lbs.; Orchard Grass, 4,000 lbs.; Lucerne, 5,000 lbs.; Alsike, 3,500 lbs., and Mammoth Clover, sown in 1890, gave 3,600 lbs.

A second cut of Timothy was 28 inches high; Lucerne, 24 inches; Orchard Grass, 36 inches; Sanfoin, 18 inches. In addition to the above, which have lived two winters and produced a good crop the past season, are the Pasture Grasses, Hard and Sheep Fescue, Red Top, Kentucky Blue Grass and White Clover, the latter doing especially well.

Phalaris Canariensis (Canary Seed Grass) sown in April attained a height of 26 inches and ripened its seed by 3rd September. Without giving the names of all the varieties sown this year, it may be said that the cultivated and native sorts mentioned above are all suitable for this part of the North-West. In cultivated sorts, Meadow Fescue, Orchard Grass, Lucerne and Alsike appear to do the best.

ROOTS.

Turnips.—A large and satisfactory crop of this root was obtained, besides two large plots for testing yields of varieties. Several acres were sown, so as to have a large supply for the stock. Plots were sown on the 11th and 23rd of May on land fallowed the previous year. Before sowing a good ploughing, harrowing and rolling was given the land. Drills were made with plough, and seed sown by turnip drill. After the plants came up they were hoed or scuffled each week until covering the ground.

A difference will be observed in yield in favour of early sowing. Purple Top varieties were the finest in shape, quality, evenness on ground, weight, and were the easiest to pull. The weight per acre of turnips, mangels, carrots and beets is computed from weighing three drills, 66 feet each, of each sort.

TURNIPS.

Variety.	Sown.	Came up.	Pulled.	Yield per Acre.
				Bush.
Purple Top Swede (Rennie)	May 11.	May 20.	Oct. 23.	1,086
Carter's Elephant do	do 11.	do 20.	do 23.	871
Elephant (Steele).....	do 11.	do 20.	do 23.	1,069
Selected Purple Top (Steele).....	do 11.	do 20.	do 23.	1,086
Bangholm (Simmers).....	do 11.	do 20.	do 23.	1,086
Highland Prize Purple Top (Simmers).....	do 11.	do 22.	do 23.	1,086
Marquis of Lorne (Bruce).....	do 11.	do 22.	do 23.	959
Hartley's Bronze (Pearce).....	do 11.	do 22.	do 23.	871
Imperial (Webb).....	do 11.	do 21.	do 23.	1,056
New Giant King (Webb).....	do 11.	do 20.	do 23.	960
Mam. Purple Top (Evans)	do 11.	do 21.	do 23.	941
Clyde Improved do	do 11.	do 20.	do 23.	1,047
Monarch (Pearce).....	do 11.	do 20.	do 23.	928
Clyde Improved (Evans).....	do 23.	June 6.	do 23.	906
Bangholm (Simmers).....	do 23.	do 6.	do 23.	950
Imperial (Webb).....	do 23.	do 6.	do 23.	871
Mam. Purple Top (Evans).....	do 23.	do 6.	do 23.	800
Elephant (Steele)	do 23.	do 6.	do 23.	812
New Giant King (Webb).....	do 23.	do 6.	do 23.	686
Highland Prize Purple Top (Simmers).....	do 23.	do 10.	do 23.	907
Purple Top (Rennie)	do 23.	do 6.	do 23.	809
Purple Top (Steele).....	do 23.	do 6.	do 23.	811
Hartley's Bronze (Pearce).....	do 23.	do 10.	do 23.	656
Elephant Giant King (Rennie).....	do 23.	do 6.	do 23.	683
Marquis of Lorne (Bruce).....	do 23.	do 10.	do 23.	634
Yellow Aberdeen (Rennie).....	do 23.	do 6.	do 23.	894
Purple Top Stubble (Sutton)	do 23.	do 6.	do 23.	1,175
Champion Purple Top do	do 23.	do 6.	do 23.	872
Elephant Purple Top (Rennie).....	June 1.	do 11.	do 24.	836
Skirving's Improved (Steele)	do 1.	do 11.	do 24.	690
Lord Derby (Webb).....	do 1.	do 11.	do 24.	792
Large White Globe.....	do 1.	do 11.	do 24.	781
Greystone	do 1.	do 11.	do 24.	982

Mangels.—Mangels were sown on the 9th and 23rd of May. The land was in the same condition as the turnip land, and the same attention was paid to it before and after seeding as was given the turnips. The seed was sown on the flat and the plants thinned out to 14 inches. A good catch was obtained, and the plants did extra well until a hail storm, on the 20th July, riddled the leaves. This put them back greatly, and when frost came on the 12th September and stopped all further growth they had hardly attained half their size.

A difference in yield will be observed in favour of early sowing.

MANGELS.

Variety.	Sown.	Came up.	Pulled.	Yield per Acre.
				Bush.
Mammoth Long Red (Rennie).....	May 9..	May 23..	Sept. 28..	572
do (Steele).....	do 9..	do 23..	do 28..	572
do (Webb).....	do 9..	do 23..	do 28..	440
do (Evans).....	do 9..	do 23..	do 28..	550
do (Simmers).....	do 9..	do 23..	do 28..	576
Giant Yellow Globe (Rennie).....	do 9..	do 23..	do 28..	475
do (Bruce).....	do 9..	do 23..	do 28..	493
Canada Giant (Pearce).....	do 9..	do 23..	do 28..	585
Gate Post (Bruce).....	do 9..	do 23..	do 28..	554
Champion Yellow Globe (Webb).....	do 9..	do 23..	do 28..	475
Yellow Tankard (Webb).....	do 9..	do 23..	do 28..	422
Golden Tankard (Evans).....	do 9..	do 23..	do 28..	492
Carter's Orange Globe (Bruce).....	do 9..	do 23..	do 28..	497
Giant Intermediate (Steele).....	do 9..	do 23..	do 28..	615
Mammoth Long Red (Webb).....	do 23..	June 11..	do 28..	360
do (Evans).....	do 23..	do 11..	do 28..	484
do (Rennie).....	do 23..	do 11..	do 28..	299
do (Steele).....	do 23..	do 11..	do 28..	361
do (Simmers).....	do 23..	do 11..	do 28..	418
do (Sutton).....	do 23..	do 11..	do 28..	361
Gate Post (Pearce).....	do 23..	do 11..	do 28..	334
Carter's Orange Giant (Pearce).....	do 23..	do 11..	do 28..	352
Yellow Intermediate (Steele).....	do 23..	do 11..	do 28..	295
Giant Yellow Globe (Bruce).....	do 23..	do 11..	do 28..	294
Giant Orange Globe do.....	do 23..	do 11..	do 28..	303
Yellow Globe (Webb).....	do 23..	do 11..	do 28..	352
do (Rennie).....	do 23..	do 11..	do 28..	360
Yellow Tankard (Webb).....	do 23..	do 11..	do 28..	290
Gate Post (Bruce).....	do 23..	do 11..	do 28..	378

CARROTS.

This crop was, as in all previous years, very poor. The hail storm which injured the mangels greatly hurt the carrots also, but their slow growth while young and our short season is very much against a good return. All the conditions of land and attention were the same as for turnips, except that the carrots were sown in drills 18 inches apart on the flat.

Variety.	Sown.	Came up.	Pulled.	Yield per Acre.
				Bush.
Improved Short White (Steele).....	May 9..	May 23..	Oct. 6..	308
Early Gem (Rennie).....	do 9..	do 23..	do 5..	220
Large White Vosges (Rennie).....	do 9..	do 23..	do 6..	352
do (Simmers).....	do 9..	do 23..	do 6..	279
Half Long Scarlet (Rennie).....	do 9..	do 23..	do 6..	271
Mam. Intermediate White (Rennie).....	do 9..	do 23..	do 6..	294
Green Top Orthe (Pearce).....	do 9..	do 23..	do 6..	367
Oxheart (Steele).....	do 9..	do 23..	do 6..	278
Large White Vosges (Bruce).....	do 9..	do 23..	do 6..	293
James's Intermediate (Pearce).....	do 9..	do 23..	do 6..	248
Mitchell's Perfection (Pearce)...	do 9..	do 23..	do 6..	183
Chantenay (Bruce).....	do 9..	do 23..	do 6..	248
Short White (Pearce).....	do 9..	do 23..	do 6..	366
Orange Giant (Pearce).....	do 9..	do 23..	do 6..	300
Yellow Belgian.....	do 9..	do 23..	do 6..	110
Yellow Intermediate (Webb).....	do 9..	do 23..	do 6..	293
Scarlet Altringham (Webb).....	do 9..	do 23..	do 6..	117

Sugar Beets.—Three sorts were tested under the same conditions as the mangels.

Variety.	Sown.	Came up.	Pulled.	Yield per Acre.
				Bushels.
Red Top Sugar.....	May 9	May 23.....	Sept. 28...	345
German Sugar Beet (Bulteau Desprez).....	do	do	do	374
do do do (Klein Wanzleben).....	do	do	do	343

Potatoes.—Seventy-six varieties of potatoes were planted in May; 15 of these were seedlings from the Central Experimental Farm at Ottawa. The land had been fallowed the year previous, and was deeply ploughed, harrowed, and a good coating of well-rotted manure put on before planting. Drills 3 feet apart were opened and the sets dropped 14 inches apart. The ground received a good harrowing as the young plants came up, and each week the scuffler was used until the plants covered the ground, when they were ridged up with the plough.

When taken up two drills of each sort 66 feet long were weighed, and the yield per acre computed from these.

The first 36 varieties had marketable or eatable potatoes on the 4th of August; the balance had none. Among the later sorts three varieties, Empire State, White Star and Richter's Gem are very fine, and, as shown, gave much better returns than many of the earlier sorts. The largest yield obtained was from a seedling, No. 80, of the Central Farm. The tubers were very large but rough, and of a poor quality. Two seedlings, No. 20 and 21, are very fine potatoes, having few eyes, very shallow, with smooth skin, good size, are early and good croppers.

Each week, commencing on the 4th of August up to the 27th, one hill of each sort was lifted and counted. From the 27th August up to lifting, 1st October, two hills were taken up, counted and weighed.

The number and weight of each sort from the two hills on 27th August are given in table below, as well as yield per acre when they were all taken up.

Variety.	Planted.	Came up.	Growth.	*Marketable (2 hills.)	*Small (2 hills.)	*Weight	Taken up.	Yield per Acre.
						Lbs. oz.		Bush.
Rosy Morn.....	May 15	June 18	Strong.	9	1	1 6	Oct. 1..	294
Clarke's Triumph.....	do 15	do 15	do ..	16	2	3 2	do 1..	304
Early Rose.....	do 15	do 15	do ..	11	3	2 8	do 1..	309
Sharpe's Seedling.....	do 15	do 15	do ..	7	2	3 2	do 1..	297
Early Puritan.....	do 15	do 15	do ..	12	11	3 2	do 1..	293
Chicago Market.....	do 15	do 15	do ..	12	2	4 2	do 1..	339
Beauty of Hebron.....	do 15	do 15	do ..	16	.....	2 8	do 1..	298
Vanguard.....	do 15	do 18	Fair....	11	6	2 12	do 1..	227
Algoma, No. 1.....	do 15	do 18	do ..	10	2	1 14	do 1..	196
Early Maine.....	do 15	do 18	do ..	9	3	1 10	do 1..	236
Rose Valley.....	do 15	do 18	Strong.	13	4	3 12	do 1..	396
Ohio Gunner.....	do 15	do 22	Fair....	9	1	1 8	do 1..	150
Halton Seedling.....	do 15	do 15	Strong.	10	5	2 3	do 1..	258
Lizzie's Pride.....	do 15	do 15	do ..	12	3	3 8	do 1..	348
London.....	do 15	do 18	Fair....	9	5	2 3	do 1..	218
Brownell's Best.....	do 15	do 18	Strong.	9	2	1 12	do 1..	293
Early Summer.....	do 15	do 18	do ..	13	2	2 13	do 1..	348
Early Ohio.....	do 15	do 20	Fair....	8	2	1 12	do 1..	194
Empress Belle.....	do 15	do 23	Strong.	6	3	2 10	do 1..	311
Snowflake.....	do 15	do 18	do ..	10	2	2 8	do 1..	322
Seedling, No. 20.....	do 15	do 18	do ..	28	7	3 7	do 1..	350
Late Rose.....	do 15	do 15	do ..	13	4	3 2	do 1..	348
Prolific.....	do 15	do 18	do ..	6	.....	1 14	do 1..	194
Jumbo.....	do 15	do 18	Weak..	8	2	1 12	do 1..	168

NUMBER and Weight of different varieties of Potatoes, &c.—*Concluded.*

Variety.	Planted.	Came up.	Growth.	*Marketable (2 hills.)	*Small (2 hills.)	*Weight (2 hills.)	Taken up.	Yield per Acre.
						Lbs. oz.		Bush.
Assiniboia.....	May 15	June 16	Strong..	12	2	4 4	Oct. 1..	366
Lee's Extra Early.....	do 15	do 20	do ..	10	3	12 13	do 1..	275
Seedling, No. 21.....	do 15	do 22	do ..	8	1	2 5	do 1..	306
Wonder of the World.....	do 15	do 21	do ..	15	3	3 12	do 1..	293
White Elephant.....	do 15	do 19	Weak...	9	.....	2 14	do 1..	381
Bliss' Triumph.....	do 15	do 22	do ..	7	2	1 2	do 1..	173
Queen of the Valley.....	do 19	do 10	Strong..	9	2	4 ..	do 1..	395
Crown Jewel.....	do 19	do 10	do ..	11	4	3 12	do 1..	385
Stray Beauty.....	do 19	do 10	Fair....	14	2	3 4	do 1..	280
Goodrich.....	do 23	do 24	Strong..	9	.....	2 4	do 1..	175
Rose's New Giant.....	do 15	do 18	do ..	15	1	3 6	do 1..	377
Early Conqueror.....	do 15	do 18	do ..	9	3	2 ..	do 1..	286
<i>Later Varieties.</i>								
Empire State.....	do 15	do 15	do ..	9	.....	2 14	do 1..	374
White Star.....	do 15	do 15	do ..	11	2	2 6	do 1..	326
Marigold.....	do 15	do 18	Weak...	5	.....	1 10	do 1..	157
Richter's Elegant.....	do 15	do 18	Fair....	8	2	1 ..	do 1..	216
Brownell's Beauty.....	do 15	do 23	do ..	10	3	1 12	do 1..	220
Thorburn.....	do 15	do 18	Strong..	12	5	2 6	do 1..	216
Count Moltke.....	do 15	do 18	do ..	13	7	2 8	do 1..	311
May Queen.....	do 15	do 17	Fair....	9	1	1 12	do 1..	238
Richter's Gem.....	do 15	do 18	Strong..	22	13	3 6	do 1..	396
Surprise.....	do 15	do 15	do ..	9	4	1 7	do 1..	275
St. Patrick.....	do 15	do 15	do ..	16	4	2 12	do 1..	348
Lee's Favourite.....	do 15	do 18	Weak...	5	5	1 3	do 1..	183
Early Eating.....	do 15	do 15	Fair....	8	2	2 1	do 1..	217
Delaware.....	do 15	do 18	Strong..	9	9	3 8	do 1..	330
Brownell's Winner.....	do 15	do 18	Fair....	9	1	1 8	do 1..	188
Clarke's No. 1.....	do 15	do 18	do ..	7	7	3 ..	do 1..	306
Rural Blush.....	do 15	do 18	Strong..	9	7	2 8	do 1..	306
Seedling, No. 2.....	do 15	do 18	Fair....	9	.....	3 3	do 1..	297
Stonewall Beauty.....	do 15	do 18	Weak...	6	2	1 6	do 1..	280
Seedling, No. 18.....	do 15	do 18	Fair....	16	8	1 9	do 1..	188
do No. 53.....	do 15	do 15	Strong..	13	1	1 12	do 1..	196
Early Bird.....	do 15	do 15	do ..	7	.....	1 8	do 1..	201
Seedling, No. 5.....	do 15	do 23	Fair....	7	1	1 4	do 1..	236
do No. 15.....	do 15	do 15	do ..	7	2	1 9	do 1..	220
Seedling, No. 9.....	do 15	do 18	Strong..	5	5	1 6	do 1..	280
Harrison.....	do 15	do 20	do ..	11	2	3 9	do 1..	253
Manhattan.....	do 15	do 18	Fair....	9	6	2 4	do 1..	293
Seedling, No. 98.....	do 15	do 22	Strong..	7	12	1 5	do 1..	123
do No. 80.....	do 15	do 15	do ..	10	3	3 4	do 1..	463
do No. 141.....	do 15	do 22	do ..	19	2	3 3	do 1..	240
do No. 209.....	do 15	do 22	do ..	11	1	1 9	do 1..	201
do No. 83.....	do 15	do 28	Fair....	8	4	1 6	do 1..	232
Telephone.....	do 15	do 22	do ..	13	7	2 7	do 1..	220
Seedling, No. 170.....	do 15	do 26	do ..	14	3	1 12	do 1..	256
Sugar.....	do 15	do 27	do ..	9	2	1 10	do 1..	220
Vermont.....	do 23	do 24	do ..	8	5	1 6	do 1..	213
Member of Parliament.....	do 23	do 24	do ..	7	2	1 8	do 1..	205
Seedling, No. 10.....	do 23	do 24	do ..	5	0	1 6	do 1..	225
Rural New Yorker.....	do 23	do 24	do ..	4	3	1 0	do 1..	220
Large Callao.....	do 23	do 24	Weak..	8	2	1 5	do 1..	210

* 27th August.

GARDEN VEGETABLES.

Several sorts of each kind of vegetable were sown last spring in hopes of finding the earliest and best for the North-West. In cabbage, 13 sorts were tested; in cauliflower, 7 varieties; in onions, 10; pease, 8, &c. Some of these were destroyed by winds and could not be replaced in time to be of any use.

The kinds recommended are not given as absolutely the best varieties to grow in the North-West under all circumstances. These have done best on the experimental farm where everything is exposed to severe wind storms and might, with protection, either natural or artificial, be worthy of only 2nd or 3rd place.

BEETS.

Three varieties were tested—Eclipse, Lentz and Long Red. Eclipse and Lentz are recommended.

BEANS.

Sixteen varieties of beans were planted. Six were much earlier than the others, and though none matured before frost cut them down, these can be recommended: Dwarf Mohawk, Early Refugee, Giant Wax, Golden Wax, Kidney and Date ditto. The following also were planted on the 23rd May but did not mature, being cut down by frost: Golden Eye Wax, Sugar Podded, Hundred-to-One, Ne Plus Ultra, Sion House, Negro Black, Black Speckled, Chevrier, Nettle-leaved White, Lima.

The English Horse Bean was also planted, grew 3 feet 6 inches in height and produced a most abundant lot of pods, but was cut down with frost before maturing.

CARROTS.

Five sorts were sown on the 9th April; all were destroyed. Three varieties were sown again on 16th April. These were Early Gem, Peer of All and Intermediate. Peer of All was injured, but all three did well and are recommended.

CABBAGE.

Thirteen varieties of cabbage were tried, mostly all early sorts. Early Epping and Early Summer were the two earliest and best, Vandergroff 2nd; Jersey Wakefield and Extra Early Etampes take 3rd place. Henderson's Early Summer was the best cabbage grown.

The following were sown in hot-bed 30th March, transplanted in hot-bed 19th April, transplanted in garden 11th May, and were fit to use 20th July: Early Epping and Early Summer.

The following were sown and transplanted same dates as above and ready to use as follows: Vandergroff, 25th July; Early Etampes, 30th July; Jersey Wakefield, 30th July.

The following were sown and transplanted in hot-bed same date as above, transplanted in garden, 29th May, and ready to use, as follows: Extra Early Eclipse, 30th July; Bo-Peep, 5th August; Red Erfurt, 15th September. Autumn King and Savoy were sown 18th April and transplanted 29th May, and ready to use 15th September.

CAULIFLOWER.

Five varieties were tested: Dwarf Erfurt, Giant White Pearl, Early Snow Ball, Algerian and Le Normand.

The first three sorts proved much the best, Snowball being first in all respects.

Seed was sown in hot-bed 30th March, transplanted in hot-bed 19th April, and in ground on the 11th May. Snowball was fit to use on the 9th July, Dwarf Erfurt and Giant White Pearl soon after.

CELERY.

White Plume, Giant White, Golden Yellow and Giant Pascal were sown in hot-bed 1st April; transplanted in hot-bed 1st May and in garden 17th June. White Plume was the earliest in use and the best variety, Giant White 2nd, Giant Pascal and Golden Yellow about equal. The trench and flat system were both tried. The celery on the flat was very poor, while in the trench it was very good.

CUCUMBERS.

Early Cluster, Medium Green, Giant Pera and White Pearl were sown in hot-bed 19th May and transplanted on 5th June. Early Cluster and Medium Green were first in bearing, but none matured.

CITRON

Was sown in hot-bed 19th May, transplanted 5th June. Destroyed by frost 12th September, with fruit very small.

LETTUCE.

Seven sorts were tried. Toronto Gem, Big Boston and Black-seeded Simpson were sown 9th April and destroyed by winds.

Sure Head and Big Boston were also sown 22nd April. White Romain, Golden Queen and Nonpareil sown 29th May.

Big Boston proved by far the best, and while all the others may be pronounced good this is specially recommended for the North-West.

ONIONS.

Yellow Danvers, Mammoth Pearl, Southport, White Globe, Red Wethersfield, White Barletta and Spanish King were sown in ground from 16th April to 9th May.

Yellow Danvers and Red Wethersfield gave a fair crop. The remainder gave very poor returns.

White Pearl, Giant Roca, White Gargons and Spanish King were sown in hot-bed on 27th March, transplanted in garden 1st June. Not a plant was lost in transplanting and all grew from the first. White Pearl and Giant Roca gave the largest yield and were the best onions. White Gargons was the earliest. Spanish King not so good as the two first, which are recommended.

PEASE.

Champion of England, American Wonder, Yorkshire Hero and Pride of the Market were sown 22nd April. These gave pease fit to use and were ripe in the following order:—

American Wonder, 12th July, 14th August.

Yorkshire Hero, 20th July, 25th August.

Pride of the Market, 1st August, 1st September.

Champion of England, 1st August, 1st September, respectively.

On the 9th May the above varieties and Ex. Early Premium Gem, Stratagem, Heroine and McLean's were sown. American Wonder proved again the earliest, giving green pease on 18th July and ripe 13th August, Ex. Early Premium Gem being second, and gave green pease 20th July, ripe 13th August. Stratagem, Yorkshire Hero and Pride of the Market gave green pease 4th August and ripe 1st September, while Heroine, McLean's and Champion gave green pease 8th August and ripe 5th September. In quality Stratagem, Yorkshire Hero, Heroine and Champion of England were sweet and large, and better liked than the others.

PARSNIPS.

Hollow Crown was sown 9th and 22nd April; the first sowing was destroyed; the second was a fair crop.

RADISH.

Seven varieties of radish were sown from 9th April to 1st July. They were Olive Gem, Rosy Gem, Olive Shaped and Scarlet Button as summer sorts, and Black Spanish California White and China White winter varieties. The four summer varieties were all good, and can be safely recommended. Of the winter sorts, Black Spanish alone came to anything; the other two went entirely to seed.

RHUBARB.

Rhubarb of any variety does well. The rankest grown is Stott's Mammoth. This with Paragon, Victoria, Myatts, Linnæus and Carleton Club are the five sorts growing on the farm. Stott's Mammoth did best. Myatts Linnæus and Victoria did next best, and are about equal.

SPINACH.

Round Summer and Savoy Leaved were sown 16th April and 9th May. The early sown were destroyed by wind, but both sorts sown 9th May did well and were first in use 15th June.

SQUASH.

Boston Marrow-White. Bush scalloped and short green Bergin were sown 2nd June; grew fairly well, but did not mature; frost on 12th September destroyed them.

TURNIPS.

Five varieties of turnips were sown in garden. Imported Purple Top Swede, Marquis of Lorne, Six Weeks, Greystone and Breadstone. Six Weeks was the earliest to mature or come in use, but the Imported Purple Top is by far the best quality for cooking, though correctly speaking, not a garden turnip.

TOMATOES.

Dwarf Champion, Early Ruby, General Grant, Conqueror and Strawberry were sown in hot-bed 30th March, transplanted in hot-bed 30th April, and into garden 3rd June. Fruit formed on Early Ruby on 3rd July, and ripened 27th August. Fruit formed on the other sorts from the 5th to 15th July, but none ripened.

FLOWERS.

A circular flower garden, 100 feet in diameter, was planted in the fall of 1890 with a variety of flowering bulbs, and last spring 34 varieties of other flowers were planted or sown. Many of these made fine bloom during the season, but were cut down by frost 12th September. Pansies and Verbenas revived somewhat after the frost.

The following are the bulbs set out:—Those that flowered: Double Early Tulips, Single Early Tulips, Parrot Tulips, *Lilium Umbellatum*, *Scilla Amœna*; *Iris Hispanica* of the following varieties: Belle Ardine, Rigobettu, Ogyges, Tantalus, L'Amable, La Perle, Sappho, La, Sicilum, *Iris Wm. George*; *Lilium Incomparable*, *Lilium Multiflorum*, *Lilium Grandiflorum*, *Lilium Thunbergianum*, *Lilium Atrosanguineum*, *Lilium Thunbergianum Aureum*, *Colchium Autumnale*.

Those that did not flower: *Bulbocodium Vernum*, Double Late Tulips, *Lilium Candidum*, *Narcissus Incomparable*, *Narcissus Poeticus*, *Narcissus Phoenix*, *Narcissus Stella*, *Narcissus Polyanthus*, *Iris Hispanica*, Lagaite, Single Hyacinth, Mixed Crocus.

Those that died were: Double Hyacinth, *Polyanthus Narcissus Gloriosa Superba*, *Galanthus Elwesii*.

The following were sown or planted in the spring. Those are extra good and are suitable for the North-West: Pansy, Godetia, Carnation, Mignonette, Petunia, *Dianthus Imperialis*, *Dianthus Heddegi*, Phlox Drummondii, *Grandiflora*, large flowering fringed, *Grandiflora*, single flowering fringed, Superbissima, Chrysanthemum, Gladiolus, Sweet Peas, Poppies, Dwarf Alyssum, Verbenas, Sweet William, Abronia, Candytuft, Stocks, Pyrethrum, Nemophila, Flowering Flax, Pinks and Asters.

The following were only fair: *Scabiosa White* and *Royal Purple*, *Salpiglossis Nigella*. Globe Amaranths did not do well.

FRUIT TREES.

In May, 1890, 500 Russian seedling apple trees were planted all lived, made a good growth, and came through the last winter in good condition. During the past season they made very gratifying progress and it is hoped and expected that they will stand the present winter. Last spring 42 named Russian varieties were put out and have made a good growth.

Of the apple trees set out prior to the spring of 1890 very few survive. A few Russian varieties of dwarf trees are still in existence, but not very promising.

Red Siberian Crab is the only variety of crab apple that stands. One tree of this sort, planted in 1888, is still living, grows a little each year, but very little.

PEARS AND CHERRIES.

A Russian seedling variety of pear planted in spring of 1890 succumbed to last winter's severity; as also did the Koslov Morello Cherry, White Black Hill Cherry and a variety not named but marked "M. No. 6" are living but were cut back.

GRAPES.

Nineteen varieties of grapes were planted in May, 1890. Each root was put down 18 inches below the surface, and as growth took place earth was filled in until the level of the surface was reached, in hopes that the roots being so far down would be out of harm's way. Before winter set in a heavy covering of coarse manure was heaped over each root, but all of no avail; every root was dead last spring.

CURRANTS.

Currant bushes came through the winter in good condition, and made an early start in the spring. But winds and frost in May destroyed all early-formed blossoms and only one sort, Black Naples, was at all well fruited. Fay's Prolific and Lee's Prolific had a few berries. Victoria, Raby Castle, Red Dutch, White Grape, White Dutch and Champion had none. Last spring 12 additional seedling varieties were planted.

GOOSEBERRIES.

Gooseberries, like the currants, were injured by the early frosts and had little or no fruit. Smith's improved had a few very fine berries. Houghton or Downing were nearly fruitless.

RASPBERRIES.

Up to the present 21 named varieties of raspberries have been tested on this farm besides 6 hybrids. Of the sorts tried Turner and Philadelphia have made the largest growth of cane, stand the winter and spring the best and produce the most fruit. Caroline and Cuthbert for the first time made a fine growth of cane and gave a few fine berries the past season. The canes are laid down before frost comes each fall, and covered with earth, and after the ground freezes up are covered with coarse manure.

Last spring 11 new seedling varieties were planted.

STRAWBERRIES.

Two varieties of strawberries bore fruit last season; these were New Dominion and Capt. Jack. The Wilson, though living through three winters, has never borne fruit. Frost in May killed all early blossom.

FOREST TREES.

Very little was done in foreign trees last spring. A few shrubs were set out and made a good growth.

In our native sorts 14,075 were transplanted, being either seedling or 2-year-olds. They were chiefly planted in a wind-break along the north boundary of farm or

in wind-breaks near the buildings. These wind-breaks were planted 65 feet apart, between which fruit trees, roots, grain, &c., will be grown. A few hundred of our native poplar were also planted. In the fall of 1890 tree seeds of maple, ash, oak, elm, cherry, hazel and saskatoon were sown in large quantities, in all two acres, and in May last nine acres of maples and ash were sown. Of the fall sowing, maple, ash, oak, elm, hazel and saskatoon came up. The maples were entirely killed soon after appearing above ground, but the rest, especially the young oak, made a satisfactory growth. Of the spring sowing about $\frac{1}{3}$ of the maple came, but none of the ash. The maples have made a good growth. 14,450 forest trees from Nebraska were set out in May 1890. These made a fair growth during that season, but this spring all the cottonwoods, locusts, walnuts, butternuts and Russian mulberry were found to be dead. White ash, green ash, soft maple, white elm and coffee tree, Russian olive and red cedar, were all badly cut back, the great majority to the ground.

The favourable season caused a good growth from the ash and elm, but the maples and coffee trees, olive and cedar made little or no progress. Besides the trees from Nebraska, 4,947 were received from the Central Experimental Farm, Ottawa. Many of the pines died soon after being set out, and of those living only about one dozen Scotch pine came through the winter and are living now. All the spruce, larch, arbor vitae, juniper, hickory, chestnut, butternut, Russian mulberry and linden were killed. A few Norway maples are living. White, black and green ash and the elm were badly cut back, many entirely killed. White birch and mountain ash coming out best and did well all the past season.

SHRUBS.

Of the shrubs planted, the *Caragana arborescens* has done extra well, and of all foreign trees or shrubs this seems to stand our climate by far the best, and may be put down as very suitable for the North-West. *Syringa alba* (lilac) also stands the climate well, and though little growth is made in a season none so far have died and some progress is being made. *Spiræa opulifolia* and *Ribes aureum* (flowering currant) stood last winter and did well the past season. All the other shrubs, such as *Syringas* *Berberis*, &c., have all or nearly all been killed. *Artemisia abrotans* planted on the farm in May, 1890, stood last winter, and being a very fast and thick grower, makes the best hedge or wind-break of anything so far tried, and promises to be very suitable for wind-breaks around gardens or for small enclosures.

WILLOWS AND POPLARS.

In willows *Salix Voronesh* and *Salix acutifolia* stand the climate well, and every spring start to grow from the tips. All other sorts, such as white willow, yellow willow, purple willow, Norway willow, Wisconsin weeping willow and *Salix laurifolia* are cut back each winter and are not suitable. In poplars, *Populus Wobstii*, *Riga* and *Populus aurea* start each spring from the tips.

SUMMER FALLOWS.

In my last report I stated that two plans were being tested in working fallow on the experimental farm. One was gang ploughing in the fall, as soon after harvest as possible, so as to start weeds, and plough and complete the work the following season: the other to do all the work in the one season—that is, from May to November. So far as the crop was concerned no difference could be detected the past season between the two modes of working. On both the grain was very heavy and greatly lodged; the piece of land gang-ploughed in the fall was very full of weeds the previous year. The past season not one appeared, while on land worked in one season weeds in great numbers came up where the crop was at all blown in the spring.

For this reason, and on account of the fall system being much the easiest managed, as it does away with all volunteer grain, it should be more frequently followed. The land on the experimental farm was worked in several ways the past season. Part

was ploughed deeply early in the spring and afterwards the weeds and volunteer grain kept down by harrow or gang-plough.

Another part was first gang-ploughed 3 inches deep and afterwards ploughed 6 inches deep with walking plough. Another portion was gang-ploughed twice with one harrowing between. On account of the great amount of stubble on the ground and of the risk of damage by fire if the attempt was made to burn it no gang-ploughing was done this fall.

STOCK.

As stated in my last report, four pure breeds of stock were secured last year for the farm. These were: Durhams, 1 male and 4 females; Holsteins, 1 male and 3 females; Aberdeen Polled Angus, 1 male and 2 females; and Ayrshire 1 male and 3 females—in all, 16 animals. 12 grade animals were also obtained in this neighbourhood.

Shortly after the arrival of the stock a Polled Angus and Durham cow aborted, and during the winter the Holstein cow, "Bonnie Ethels Mercedes," a Polled Angus calf and a grade heifer died, it is thought from drinking very cold water which had to be drawn in tanks daily from the dam.

During the winter and spring 11 head have been added to the herd by births: 1 Durham bull and heifer, 2 Ayrshire bulls, 1 Polled Angus heifer, 1 Holstein heifer and 5 grades. Up to 1st January, 1892, there have been added 2 Polled Angus heifers, 1 Holstein heifer and 3 grades.

During the season farmers availed themselves of the use of the 4 bulls to a considerable extent, considering the limited number of cows in this locality.

Three young bulls, 1 Durham and 2 Ayrshire, will be ready for service this coming season and will be sold to settlers.

STALLION.

In the latter part of May last the Percheron stallion "Clement" reached the farm from Montreal for service in the neighbourhood. Although rather late in arriving, 40 mares were served, giving good satisfaction. A Clyde or Shire stallion would prove much more acceptable to the farmers in the Territories than a Percheron, no matter how good the Percheron may be.

SILLO.

Early last spring a silo was built in the barn. Though not very large, it is quite large enough to test the practicability of making and keeping ensilage in the North-West.

The silo is 10x12 ft., inside measurement, and runs from basement floor 12 ft. above barn floor, a height of 22 feet; the portion above the barn floor is exposed to very severe cold.

Green fodder was cut and placed in silo as follows:—

Aug. 3rd and 4th, rye, wheat and oats.

" 5th, rye and oats.

" 6th, wheat.

" 6th, rye and oats.

" 13th, barley and oats.

" 18th, millets and Hungarian grass.

" 29th, rape.

Sept. 3rd and 4th, corn.

" 5th, corn.

In all 43 tons. At present the corn is being fed to the stock, which eat it readily. For 8 inches on top and a little on sides, the ensilage is found bad, but all inside that is good and well preserved.

A coating of hay was placed over the corn, which has been the only protection or covering from the cold it has had.

IMPROVEMENTS.

In addition to the silo above mentioned, an underground hen-house has been built and material obtained for an internal fence to enclose about one hundred acres of the farm. This fence will be erected early next spring and will do away with the herding of the stock, which had to be done last season. A windmill was put up on the barn last summer, which draws water from a reservoir nearly 1,000 feet away, grinds grain, cuts straw and is found a very great convenience, especially in furnishing a plentiful supply of water during the winter months. The pipes from the reservoir were put down 7 feet deep to protect them from frost, and when cold weather came on a thick covering of coarse manure was spread on the ground the entire distance.

POULTRY.

Having no hen-house last spring or any other place in which the breeds of fowls could be kept separate, they did very poorly. In fact, except an increase of half a dozen, our flock is the same now as then.

With the new and comfortable building now in use, it is hoped better success will be had in future.

METEOROLOGICAL.

Temperature and rainfall, maximum and minimum, for 12 months; rainfall during the growing season.

TEMPERATURE.

Months.	Maximum.	Minimum.
January ..	43° on 19th.	— 27° on 15th and 31st.
February ..	29° on 4th.	— 41° on 2nd.
March ..	39° on 30th.	— 38° on 6th.
April ..	87° on 23rd.	5° on 2nd and 3rd.
May ..	89° on 17th.	12° on 4th.
June ..	79° on 18th.	23° on 3rd.
July ..	83° on 30th.	40° on 24th and 25th.
August ..	88° on 4th.	37° on 22nd.
September ..	85° on 9th.	23° on 13th.
October ..	70° on 8th.	12° on 26th.
November ..	56° on 5th.	— 16° on 17th and 27th.
December ..	41° on 12th.	— 41° on 25th.

RAINFALL.

	Inches.
April ..	0
May ..	— 97
June ..	6 — 19
July ..	3 — 84
August ..	2 — 14
September ..	86
October ..	03
Total ..	14·03

EXHIBITIONS ATTENDED.

Products of the farm were sent to the Winnipeg industrial exhibition, and shown there in connection with those from the Manitoba experimental farm. The exhibit from this farm consisted of 55 varieties of wheat in straw, 3 varieties in bags and 7 in bottles; 18 varieties of barley in straw, 8 in bags and 8 in bottles; 14 varieties of oats in straw, 6 in bags and 7 in bottles; 15 varieties of field and

garden pease in bottles, besides samples of buckwheat, rye and tares in straw, and cabbage and turnip seed in bottles. There were also exhibited 55 varieties of named native grasses, many of which are being cultivated on the farm; 16 sorts of cultivated grasses and clovers, all grown on the farm last season; 75 varieties of potatoes and 4 varieties of onions. A collection of 15 sorts of turnips were sent down, but on account of want of space were not shown.

The exhibitions at Saltcoats and Yorkton, in the northern part of the province, were also attended. As these exhibitions were held at the same time as others along the line of the Canadian Pacific Railway, it was impossible to reach more than the above.

I have the honour to remain,

Your obedient servant,

ANGUS MACKAY,
Superintendent.

EXPERIMENTAL FARM FOR BRITISH COLUMBIA.

REPORT OF THOMAS A. SHARPE, SUPERINTENDENT.

AGASSIZ, B.C., 31st December, 1892.

To WM. SAUNDERS, Esq.,
Director Dominion Experimental Farms,
Ottawa.

SIR,—I have the honour to submit herewith my report for 1891, being the third annual report of the work done on the experimental farm at Agassiz.

The weather during January was very mild and rainy, but in February it turned colder, and there were sharp frosts at night with bright sunshine during the day. The previous rains had left the land very wet, and the freezing and thawing heaved the small fruits, strawberries, currants, raspberries, &c., out of the ground, and caused the loss of quite a number of those which were newly planted, but did not injure anything that had been planted the spring previous.

The spring did not open quite so early this year as in 1890. In that year we began seeding on 3rd April; this year the first grain was sown 8th April. The season was cold and wet during April and the first half of May, and in consequence the early sown-grain did not make much progress during that time, showing less difference in time of heading and ripening than is usually the case where there is so much difference in the time of sowing.

About 25 acres of new land has been grubbed and ploughed this summer, and 8 acres of the old land manured and summer fallowed and sown with fall wheat, and will be seeded to timothy and clover next spring.

About 5 acres of new land has also been summer fallowed, having been ploughed several times and harrowed frequently with the disc and drag harrows, to see what effect this treatment will have in exterminating the ferns, and it is to be hoped that there will be but little trouble with this weed in that piece of ground in future.

A new fence has been put up on the west side of the farm and about three-quarters of a mile on the north and south sides is levelled and graded, and the fence will be built before spring.

The total area of land now broken up and ready for crop on the experimental farm is 105 acres, and may be summarized as follows:—

	Acres.
Planted in orchard.....	26
Under crop in 1891	51
Summer fallow.....	13
New land broken up during summer of 1891.....	15
Total.....	105

Notwithstanding the rather unfavourable weather in the spring of 1891 the area under crop in this province was considerably greater than ever before, and the crop generally was a good average.

The number of fruit trees and small fruit plants planted this year is far in excess of any previous year, and the prospects are that before long British Columbia will have not only enough fruit for home consumption but also a large surplus for export.

FALL WHEAT.

Fourteen varieties of fall wheat were sown last fall. Owing to the freezing and thawing in February they all suffered, and were a much lighter crop than the previous year; but the summer and harvest being dryer and hotter than that of 1890, the berry of both fall and spring wheat is much harder and brighter than the crop of that year.

Below will be found a report of the date of sowing, heading, ripening, and the yield of $\frac{1}{20}$ of an acre of each variety tested.

In this connection I wish to explain that owing to lack of barn accommodation our grain had to be stacked, and in this climate, where there is so much wet weather, especially in autumn, the grain in small stacks gets damp and it is difficult to thresh. This entails a loss, which in small plots materially reduces the yield.

Variety.	Sown.	Headed.	Harvested.	Length of Straw.		Yield.	No. of Days to Mature.	Remarks.
				Feet.	Lbs			
Carter's Hybrid A.	Oct. 30	June 10	July 25	4 $\frac{1}{2}$	46 $\frac{1}{2}$	268		Straw rather soft; did not stand up well; no smut.
do B.	do 30	do 13	Aug. 3	4 to 5	45 $\frac{1}{4}$	277		Straw bright and standing up well; very little smut.
do C.	do 30	do 7	July 25	3 $\frac{1}{2}$ to 4	39 $\frac{1}{2}$	268		Straw short and soft; badly crinkled down; very little smut.
do D.	do 30	do 11	do 25	4 $\frac{1}{2}$ to 5 $\frac{1}{2}$	43 $\frac{3}{4}$	268		Straw stood up fairly well. No smut.
do E.	do 30	do 7	Aug. 10	5 to 5 $\frac{1}{2}$	21 $\frac{1}{2}$	284		This variety was sown in the spring of 1890, and did not ripen. We saved a few heads, and sowed it in the fall of 1890, but had not enough to sow the $\frac{1}{20}$ of an acre. I give the produce of 2 $\frac{1}{2}$ lbs. This appears to be one of the best of Carter's Hybrids, although the grain is very small.
do F.	do 30	do 8	July 27	5 to 5 $\frac{1}{2}$	35 $\frac{1}{2}$	270		Straw crinkled down; a little smut.
do G.	do 30	do 3	do 25	5	55 $\frac{3}{4}$	268		Straw bright and fairly stiff; standing up well; no smut.
do H.	do 30	do 13	do 27	5 to 6	63 $\frac{3}{4}$	270		Straw stands up well; no smut.
do J.	do 30	do 9	Aug. 3	5 to 5 $\frac{1}{2}$	49 $\frac{3}{4}$	277		Straw stands up fairly well; no smut.
do K.	do 30	do 14	do 3	5 to 5 $\frac{1}{2}$	62 $\frac{1}{2}$	277		Straw stands up well; straw bright and stiff; no smut.
Democrat	do 30	do 7	July 25	4 to 4 $\frac{1}{2}$	45	268		Straw soft; did not stand up well; considerable smut.
Tasmania	do 30	do 14	Aug. 3	4 to 5	51	277		Straw soft; all down; very smutty.
Manchester	do 30	do 10	do 8	4 $\frac{1}{2}$ to 5	55	282		Straw bright, and stands up well; no smut
Velvet Chaff	do 30	do 16	do 10	4 to 5	45	284		Straw bright; stands up well; no smut.

SAUNDERS' CROSS-BRED WHEATS.

Samples consisting of 20 grains each of the following varieties were planted. Beds 10 feet long and 4 feet wide were prepared, and the cross-bred wheats were planted in rows 1 foot apart in the row and the rows 3 feet apart, one row of 10 grains of some of the well-known varieties being planted in centre of each bed for comparison.

Variety.	When Sown.	When up.	Length of Straw.	Headed out.	Ripe.	Amount Produced.	No. of Grains Sown.	No. of Grains Grew.	Remarks.
<i>Bed No. 1.</i>			Feet.			Oz.			
Alpha.....	Apr. 24	May 4	3½ to 4	July 4	Aug. 24	12½	20	15	(Alpha, 20 grains; Judket, 10 grains.) Only 17 grains of Alpha germinated, and two of these, when headed out, proved to be a different variety, being strongly bearded. The Alpha is bald.
Bearded Alpha..	do 24	do 4	4	do 4	do 24	1¾	..	2	Alpha stoolled well; heads medium length, and fairly compact; berry bright, clear amber; medium long, but not plump; no smut. The bearded variety made a vigorous growth; straw long, bright and harder than the bald or Judket, which was in the same bed.
Judket.....	do 24	do 4	4½	do 6	do 27	5	10	8	Judket—8 kernels germinated; straw long, coarse and soft; laying down badly; heads long and very open, the breasts being very far apart.
<i>Bed No. 2.</i>									
Abundance.....	do 24	do 4	3 to 3½	do 5	do 23	4¾	20	9	(Abundance, 20 grs.; Rio Grande, 10 grs.) Abundance—15 grains of this variety grew, but later on 6 were cut off by worms, leaving 9 to come to maturity. This variety did not stool out well, and the heads were very uneven in length; some were over 5 inches long, but not well filled; some of the heads were much shorter, but better filled. Straw fairly bright and stiff, standing up very well. Grain bright and clear, and a much plumper berry than Alpha.
Rio Grande.....	do 24	do 4	3	do 7	do 20	1¼	10	3	Rio Grande—Only 3 feeble plants came to maturity, the cut-worms taking all the others, and injuring those left.
<i>Bed No. 3.</i>									
Beta.....	do 24	do 4	3½	do 5	do 28	10½	20	13	(Beta, 20 grains; Red Fife, 10 grains.) Beta—All the grains of this variety germinated, but 7 were destroyed by cut-worms. Straw bright and stiff; medium in length; stoolled fairly well; heads medium in length; compact and well filled to tips with bright, plump berries of medium size.
Red Fife.....	do 24	do 4	2½ to 3	do 9	do 28	3¾	10	7	Red Fife—All the grains of this variety germinated; 3 were taken by cut-worms; straw medium in length; bright and hard; standing up well; heads compact; of medium length; well filled.
<i>Bed No. 4.</i>									
Ottawa.....	do 24	do 4	4	do 9	do 26	6¾	20	10	(Ottawa, 20 grs.; Anglo Canadian, 10 grs.) Ottawa—15 grains of this variety germinated, but only 10 reached maturity; straw long, but rather weak, laying down before heading out, and did not fill well; stoolled well; heads medium in length and compact, but not filled out; grain small but plump.

SAUNDERS' CROSS-BRED WHEATS—*Concluded.*

Variety.	When Sown.	When up.	Length of Straw.	Headed out.	Ripe.	Amount Produced.	No. of Grains sown.	No. of Grains grew.	Remarks.
<i>Red No. 4—Con.</i>			Feet.			Ozs.			
Anglo Canadian.	Apr. 24	May 4	4½	July 15	Sept. 3.	8¼	10	9	Anglo Canadian—10 grains of this variety germinated and 9 came to maturity; straw long and soft; all down before heads were filled; heads long and very open, but fairly well filled out to tips; berry long but not plump.
<i>Red No. 5.</i>									(Carleton, 20 grains; Ladoga, 10 grains.)
Carleton.....	do 24	do	4 3 to 3½	do 6	Aug. 20	11½	20	11	Carleton, 13 grains of this variety came up but only 11 reached maturity. Headed out seven days before Ladoga, which was sown with it, and kept in the lead, ripening six days before that variety. Straw medium length and stood up well. Heads medium and well filled out. Grain plump, bright and fairly hard. A promising variety.
Ladoga.....	do 24	do	4 3½ to 4	do 13	do 26	3¼	10	4	Ladoga—6 grains of this variety germinated; only 4 matured. Straw long, and stood up well. Heads good length and fairly compact. Considerable smut. This was the only one of the twelve varieties in this test that had any smut. None were treated in any way for smut.
<i>Red No. 6.</i>									
Prince	do 24	do	4 3 to 3½	do 6	do 27	3¼	20	6	(Prince, 20 grs.; White Russian, 10 grs.) Prince—This variety did not germinate well, only 10 grains coming up, and only 6 came to maturity. Straw long; stood up well. Heads long and very well filled. Grain medium in size, but somewhat shrunken.
White Russian..	do 24	do	4 3 to 3½	do 12	do 29	2¼	10	4	White Russian—6 grains of this variety germinated, but only 4 came to maturity. Straw medium in length and stood up well. Heads long, but very open.

WHEAT, BARLEY AND OATS, ONE-TWENTIETH OF AN ACRE PLOTS.

Tests of one-twentieth of an acre plots of wheat, oats and barley. The land chosen for these tests was ploughed for the first time in July, 1890. There was a number of fir trees grubbed out of this piece, and considerable levelling done which brought the subsoil to the surface in many places, and although the ground was ploughed twice afterwards and thoroughly worked up with the disc and drag harrows the yield was considerably reduced. None of the varieties made vigorous growth where the stumps had been or where knolls had been levelled off. The soil was a clay loam, and in every respect, except as above mentioned, all the plots were alike.

The plots of wheat were sown at the rate of 90 lbs., or 1½ bush. per acre; barley 96 lbs., or 2 bush. per acre, and oats 85 lbs., or 2½ bush. per acre. Following will be found a record of the date of sowing, heading and ripening, with other notes as to conditions of growth, &c.

Although the seed was not treated for smut there was very little in this series of test plots. Those that suffered most from inequality in the soil caused by the grubbing and levelling are marked by a star.

WHEAT.

Variety.	Sown.	Headed.	Mature.	Harvested	Weight.	Yield per Acre.	Length of Straw.	No. of Days to Mature.	Remarks.
					Lbs.	Bush. lbs.	Feet.		
Plot No. 1, Anglo Canadian.....	April 17...	July 7...	Aug. 20...	Aug. 20...	62½	20 50	3½ to 4½	125	Heads long but very open; stands up well; stools fairly well; no smut.
Plot No. 2, Ladoga.....	do 17...	June 28...	do 15...	do 15...	55	18 20	2½ to 4	119	Heads short and compact; straw very uneven in length; did not stool well; stands up well; no smut.
Plot No. 3, White Fife.....	do 17...	do 29...	do 18...	do 18...	63½	21 10	3 to 3½	123	Heads long and medium compact; well filled out to tip; did not stool; straw stiff and stands up well; no smut.
Plot No. 4, Red Fife.....	do 17	do 29...	do 18...	do 18...	65	21 40	3 to 3½	123	Heads good length and compact; well filled out to tips; stands up well; stools fairly; no smut.
Plot No. 5, Campbell's Triumph.....	do 17...	do 27...	do 15...	do 15...	71	23 40	3½ to 4½	119	Heads medium in length and compactness; stooped well; stands up well; no smut.
Plot No. 6, Campbell's White Chaff	do 17...	do 27...	do 13...	do 13...	63½	21 10	4½ to 5	117	Heads good length and fairly compact; stands up well; no smut.
Plot No. 7, Russian Hard Tag.....	do 17...	do 29...	do 18...	do 18...	55	18 20	3 to 4	123	Heads and straw very uneven in length; heads fairly compact; does not stand up well; a little smut.
Plot No. 8, Rio Grande.....	do 17...	do 28...	do 20...	do 20...	68	22 40	4½ to 5	125	Heads long but open; straw bright and stiff; a very little smut.
Plot No. 9, Judket.....	do 17...	do 30...	do 19...	do 19...	62½	20 50	3½ to 4	124	Heads medium in length but not compact; straw hard and stiff; no smut.
Plot No. 10, Red Fern.....	do 17...	do 30...	do 18...	do 18...	55½	18 30	2½ to 3½	123	Very uneven in length of head; fairly compact; no smut.
Plot No. 11, Indian Hard Calcutta.	do 17...	do 15...	do 10...	do 10...	30½	10 10	2 to 3	115	Did not stool; heads very short and open; a poor stand.

WHEAT.

Variety.	Sown.	Headed.	Mature.	Har-vested.	Weight.	Yield per Acre.	Length of Straw.	No. of Days to Mature.	Remarks.
Plot No. 12, Colorado.	April 17..	July 6..	Aug. 15..	Aug. 15..	Lbs. 43½	Bush. lbs. 14 30	Feet. 2½ to 3½	120	Very poor stand; seed did not germinate well, and it did not stool; head short and open; no smut.
Plot No. 13, Pringle's Champlain ..	do 17..	June 30..	do 18..	do 18..	46	15 20	3½ to 4	123	Did not stool, and very uneven in length of head, ranging from medium to very short; fairly compact; no smut; straw soft.
Plot No. 14, Gehum	do 17..	do 27..	do 15..	do 15..	41	13 40	2 to 3	120	A very poor stand, and short in head and straw; heads fairly compact; straw bright and hard; no smut.
Plot No. 15, Australian.	do 17..	do 29..	do 18..	do 18..	67	22 20	4½ to 5	123	Heads long and compact; straw weak; five per cent smut. This is the smuttiest wheat grown here this season.
Plot No. 16, White Russian.	do 17..	do 30..	do 18..	do 18..	73	24 20	3 to 4½	123	Uneven in growth of straw and heads, but stooled well; heads rather open; stands up well; no smut.
Plot No. 17, White Delhi.	do 17..	do 30..	do 20..	do 20..	64	21 20	3 to 4	125	Very uneven in growth of heads, ranging from long to very short and very open; straw bright and hard.
Plot No. 18, Saxonka	do 17..	do 29..	do 18..	do 18..	59½	19 50	3 to 4½	123	Stooled out very well; heads short and compact, but not well filled out; straw soft, and crinkled down; no smut.
Plot No. 19, White Connell	do 17..	do 30..	do 18..	do 18..	65½	21 50	3 to 4	123	Considerable levelling had been done on this plot, and the stand was poor; did not stool; heads medium in length, and compact; no smut.
Plot No. 20, Defiance.	May 25..	July 13..	Sept. 9..	Sept. 9..	39½	13 05	3½ to 4½	107	The seed for this plot and No. 21 was not received in time to sow at the time the others were sown, and the rains in autumn injured the crop; heads good length; straw bright and hard; no smut.
Plot No. 21, Wellman's Fife.	do 25..	do 20..	do 9..	do 9..	34	11 20	4½ to 5	107	Heads long and fairly compact; straw bright and stiff; as in plot No. 20, this suffered from the rains in harvesting, losing over half the grain by shelling and sprouting.

BARLEY.

Two-rowed.

Plot No. 22, Golden Melon	April 18	July	1..	Aug. 14..	Aug. 14..	86½	36 02	3 to 3½	118	Stands up fairly well, but not an even crop either in heads or straw; no smut.
Plot No. 23, Saale	do 18..	do	4..	do 14..	do 14..	80½	33 26	3 to 3½	118	Straw a little weak; heads medium; no smut.
Plot No. 24, Prize Prolific	do 18..	do	4..	do 14..	do 14..	78½	32 39	3 to 3½	118	Did not stool well; a thin stand and heads short; no smut.
Plot No. 25, Thanet	do 18..	do	2..	do 6..	do 6..	57½	24 03	2½ to 3	106	Straw short and soft; did not stool out; heads short.
Plot No. 26, Duck-hill	do 18..	do	2..	do 14..	do 14..	58½	24 08	2½ to 3	118	Straw stiff, and heads very fine, but crop injured as explained above.*
Plot No. 27, Kinver	do 18..	do	5..	do 16..	do 16..	50	20 40	2 to 3	120	Straw very uneven in length and short heads; did not stool.
Plot No. 28, Peerless White	do 18..	do	2..	do 10..	do 10..	69½	28 46	2 to 3½	114	Very uneven in length of straw and head, ranging from very short to very long; straw weak.*
Plot No. 29, Improved Chevalier	do 18..	do	4..	do 14..	do 14..	79	32 44	3 to 3½	118	Fairly even crop; straw stands up fairly well.
Plot No. 30, Danish Chevalier	do 18..	do	1..	do 10..	do 10..	81	33 36	2½ to 3½	114	Very patchy and uneven; a portion of plot very fine; crinkled down pretty badly.*
Plot No. 31, Goldthorpe	do 18..	do	2..	do 14..	do 14..	101	42 04	4 to 4½	118	Very fine in spots; straw long, and stands up well; heads long and fine.*
Plot No. 32, Golden Grains	do 18..	do	2..	do 8..	do 8..	66½	27 34	3 to 4	112	Uneven in length of straw and head; straw stiff.
<i>Six-rowed.</i>										
Plot No. 33, Baxter's Six-rowed	do 20..	June	18..	July 27..	July 30..	90	37 24	3 to 3½	98	Straw bright and hard, standing up well; well stooled out and even; no smut.
Plot No. 34, Rennie's Improved	do 20..	do	18..	do 24..	do 25..	86½	36 02	3 to 3½	92	Straw medium stiff, standing; standing up fairly well; well stooled; fully 3 per cent smut.
Plot No. 35, Odessa	do 20..	do	19..	Aug. 7..	Aug. 10..	75½	31 17	2 to 3½	109	Very uneven in length of straw and head; did not stool, and made a thin stand; very little smut.
Plot No. 36, Oderbruch	do 20..	June	22..	July 27..	July 31..	54½	22 39	2 to 3½	98	Straw soft and weak, lying down when ripe; very patchy.*
Plot No. 37, Common Six-rowed	May 6..	July	2..	Aug. 18..	Aug. 18..	137½	57 14	3 to 3½	105	The seed of this plot was procured from Mr. Robert Carson, of Pavillion Mountain, 3,000 ft. above sea level. It was an extra fine even, straw standing up well and very even, with extra long heads; no smut.
Plot No. 38, Six-rowed wheat	April 20..	June	25..	July 30..	do 1..	100½	41 42	2½ to 3	100	Stand even, and straw bright and stiff; heads long and well filled.
Plot No. 39, Mensury	do 20..	do	19..	do 30..	do 1..	86	35 40	2 to 2½	100	Stands up well; did not stool, and is not an even crop; heads very uneven; a little smut.
Plot No. 40, Spiti Valley	do 20..	do	13..	do 24..	July 25..	54	20 24	1 to 1½	95	Seed did not germinate well, but where it did grow it stooled out well; straw was very short.

OATS.

Variety.	Sown.	Headed.	Mature.	Har-vested.	Weight.	Yield per Acre.	Length of Straw.	No. of Days to Maturity.	Remarks.
Plot No. 41, Black Tartarian	April 20..	June 15..	Aug. 21..	Aug. 22..	Lbs. 93	Bush. lbs. 54 24	Feet. 2 to 2½	123	Stands up well, but very poor stand; seed did not germinate well; no smut.
Plot No. 42, Bonanza	do 20..	July 6..	do 18..	do 19..	64	37 22	3 to 3½	120	Straw soft, and badly down when ripe; heads short and not well filled; no smut.
Plot No. 43, Canadian Triumph	do 20..	do 10..	do 17..	do 18..	46	27 2	2½ to 3	119	Very thin stand; did not stool; heads very short; no smut.
Plot No. 44, Egyptian	do 20..	do 14..	do 20..	do 22..	80½	47 12	2 to 3½	122	Straw hard and bright, standing up well, and well headed, but very uneven in growth; no smut.
Plot No. 45, Challenge	do 20..	do 11..	do 20..	do 22..	62½	36 26	3 to 3½	122	Stands up pretty well, but a very poor stand; seed did not germinate well; no smut.
Plot No. 46, Prolific Black Tartarian	do 20..	do 15..	do 21..	do 22..	82	48 8	2½ to 3½	123	Very uneven in length of straw and head; stands up well; no smut.*
Plot No. 47, Banner	do 20..	do 11..	do 22..	do 22..	124	73 32	3½ to 4½	124	Stands up well; long, well-filled heads of plump grain; no smut.
Plot No. 48, Early Blossom	do 20..	do 6..	do 17..	do 19..	87	51 6	3 to 5	119	Considerably broken down; straw soft; no smut.*
Plot No. 49, Early Racehorse	do 20..	do 8..	do 16..	do 19..	90½	53 8	4½ to 5½	118	Straw long and coarse, but soft, and fell down before ripe; no smut.
Plot No. 50, Flying Scotchman	do 20..	do 9..	do 18..	do 19..	99	58 8	3½ to 4½	120	Did not stand up well, but well headed, and grain plump; a little smut.
Plot No. 51, Giant Swedish	do 20..	do 16..	do 22..	do 22..	82½	48 18	3 to 3½	124	Stands up well; straw strong and bright; no smut.
Plot No. 52, White Poland	do 20..	do 8..	do 18..	do 19..	63½	37 12	2 to 4	121	Very uneven in straw and head; does not stand up well; a little smut.*
Plot No. 53, Prize Cluster	do 20..	do 9..	do 16..	do 19..	49	28 28	2 to 2½	118	Straw short and heads poor; no smut.
Plot No. 54, Rennie's Prize	do 20..	do 11..	do 19..	do 19..	41½	24 14	2 to 2½	121	Very poor in straw and head; seed did not germinate well; a very poor stand.*
Plot No. 55, Victoria Prize White	do 20..	do 12..	do 21..	do 22..	44	25 30	2½ to 3½	123	Stands up well; heads short and very open; no smut.
Plot No. 56, White Russian	do 20..	do 15..	do 19..	do 19..	60	35 10	2½ to 3½	121	Straw soft; lodged when cut; heads short but compact; no smut.
Plot No. 57, Early Archangel	do 20..	do 10..	do 18..	do 19..	73½	43 8	3½ to 4	120	Stands up well; heads long and compact, but seed did not germinate freely, and did not stool out.
Plot No. 58, Holstein Prolific	do 20..	do 13..	do 20..	do 21..	76½	45 0	3½ to 4	123	Straw bright and hard; heads short but compact; a poor stand.*
Plot No. 59, Rosedale	do 20..	do 16..	do 18..	do 19..	95½	56 4	4 to 5	120	Straw soft, and crinkles down; heads long and compact; a poor stand.

Plot No. 60, Hazlett's Seizure	do	20..	do	10..	do	18..	do	19..	72	42	18	3½ to 4	120
Plot No. 61, Welcome.....	do	20..	do	9..	do	17..	do	17..	66	38	28	3½ to 4	119
Plot No. 62, American Triumph ...	do	20..	do	18..	do	17..	do	17..	67½	39	24	3 to 3½	119
Plot No. 63, Early Gothland	do	20..	do	12..	do	15..	do	17..	50	58	28	4 to 4½	117
Plot No. 64, Golden Side	do	20..	do	18..	do	19..	do	22..	67½	39	24	3½ to 4	121

Straw bright, and stands up well; did not stool out; very thin stand, but fine compact heads; no smut.*

Straw bright and stiff, standing up well; a little smut.

Straw bright, and stands up well; no smut.

There was only 2 lbs. of this variety sown on half a plot, or one-fortieth of an acre. Stands up well; good, long, well-filled heads; bright, plump grain.

Stands up well, but heads short and not well filled out. Not a desirable oat.

EARLY AND LATE TESTS OF ONE-TWENTIETH OF AN ACRE OF WHEAT, BARLEY AND OATS.

The land for these tests had been first broken up in the fall of 1889 and cropped with grain in 1890; it was ploughed in the fall of 1890 and thoroughly harrowed in the spring of 1891, and the ground for each series of plots was carefully harrowed just before sowing.

The weather up to the third sowing had been very wet and cold, and the grain did not make much progress during that time. Plot No. 6, in each case, was threshed from the stock, and the others had to be stacked. This accounts for much of the difference in yield in favour of Plot No. 6 of barley, wheat and oats.

Below will be found the date of each sowing, heading, maturing and harvesting, &c.:—

WHEAT.

Variety.	Sown	Headed.	Mature.	Harvested	Weight.	Yield Per acre.	Length of Straw.	No. of Days to Mature.	Remarks.
<i>White Connell.</i>					Lbs.	Bush.	Ft.		
Plot No. 1	April 15.	June 27.	Aug. 16.	Aug. 17.	64	21.20	3½ to 4	123	Straw strong and stands up well. Did not stool well. No smut.
do 2	do 22.	July 2.	do 20.	do 20.	60	20.00	2½ " 3½	120	Very uneven in straw and head. No smut.
do 3	do 29.	do 8.	do 22.	do 22.	49	16.20	2 " 2½	115	Very short in head and straw. A little smut.
do 4	May 6.	do 14.	do 24.	do 24.	51½	17.10	2½ " 3	110	Short in straw and head. Did not stool out. Considerable smut.
do 5	do 13.	do 17.	do 27.	do 28.	67	22.20	3 " 3½	176	Even crop. A fairly good stand. Very smutty.
do 6	do 20.	do 23.	Sept. 1.	Sept. 1.	75	25.00	3½ " 4	104	Straw soft and lodged before ripe. No smut.
<i>Campbell's White Chaff.</i>									
Plot No. 1	April 15.	June 29.	Aug. 10.	Aug. 12.	66½	22.10	3 to 3½	119	Straw bright and hard. Heads short but well filled out. No smut.
do 2	do 22.	July 2.	do 16.	do 17.	59½	19.50	2 " 3½	116	Stands up well, but very uneven in length of straw and head. No smut.
do 3	do 29.	do 8.	do 20.	do 20.	59½	19.50	2 " 3½	113	Very uneven in head and straw. Heads well filled. No smut.
do 4	May 6.	do 13.	do 22.	do 22.	45½	15.50	2 " 2½	108	Straw short and head poor. A very thin stand. No smut.
do 5	do 13.	do 17.	do 24.	do 24.	56	18.40	3 " 3½	102	Straw medium. Heads long and well filled out. No smut.
do 6	do 20.	do 22.	do 27.	do 28.	81½	27.10	3½ " 4	99	Straw stiff and bright. Heads long and well filled out. No smut.

BARLEY.

<i>Baxter's Six-rowed.</i>					
Plot No. 1	April 15.	June 25.	July 24.	July 25.	50
do 2	do 22.	do 28.	Aug. 2.	Aug. 3.	54
do 3	do 29.	July 6.	do 5.	do 10.	50
do 4	May 6.	do 9.	do 10.	do 10.	53
do 5	do 13.	do 11.	do 16.	do 17.	56
do 6	do 20.	do 16.	do 20.	do 22.	68
<i>Prize Prolific Barley.</i>					
Plot No. 1	April 15.	July 2.	Aug. 10.	Aug. 11.	56½
do 2	do 22.	do 10.	do 15.	do 17.	57½
do 3	do 29.	do 13.	do 17.	do 17.	56
do 4	May 6.	do 17.	do 20.	do 20.	55
do 5	do 13.	do 18.	do 22.	do 22.	70
do 6	do 20.	do 22.	do 30.	Sept. 1.	75
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					3½ " 4
					23-26
					23-46
					23-16
					22-44
					29-8
					31-12
					2 to 2½
					2 " 3
					2 " 2½
					2 " 2½
					2½ " 3
					3½ " 4
					23-26
					23-46
					23-16
					22-44

Long Yellow Flint (Dakota). Weight in hills per acre do drills do	May 23.	June 4.	Aug. 9.	Sept. 20.	Oct. 6.	8½	Oct. 13.	15 1308½ 13 1802½	Late milk when cut; ears large, but not well filled out to tip.
Thoroughbred White Flint. Weight in hills per acre do drills do	May 23.	June 4.	Aug. 18.			10	Oct. 13.	20 1593½ 19 170	Nearly in roasting ear when cut; stalks rather coarse.
Livingstone's Gold Coin. Weight in hills per acre do drills do	May 23.	June 2.	Aug. 26.			7	Oct. 13.	13 1830 14 352½	Very early milk when cut; not to roasting stage.
Canada Yellow. Weight in hills per acre do drills do	May 23.	June 3.	Aug. 2.	Sept. 18.	Oct. 13.	7	Oct. 13.	12 1107½ 11 1952½	Good condition; glazed; ears medium long and well filled out.
Pearce's Prolific. Weight in hills per acre do drills do	May 23.	June 4.	Aug. 3.	Sept. 2.	Sept. 22.	8	Oct. 13.	12 525 11 1980	Some ears ripe, remainder glazed; ears medium long and well filled to tip; one of the best.
Mitchell's Early. Weight in hills per acre do drills do	May 23.	June 3.	July 27.	Aug. 17.	Sept. 15.	5½	Oct. 13.	7 1073½ 6 575	Ripe Oct. 1; ears small and not well filled out to tip.
Red Blazed. Weight in hills per acre do drills do	May 23.	June 4.	July 27.	Aug. 19.	Oct. 1.	7½	Oct. 13.	9 1360 8 197½	Ripe Oct. 13; ears medium long, well filled to tip; several vacant spots, where trees had been taken out the previous fall.
White Flint (from Dakota). Weight in hills per acre do drills do	May 23.	June 3.	July 28.	Sept. 11.	Oct. 11.	5	Oct. 13.	4 1324½ 4 1460	Corn short and stalks slender; ears very small.
Yellow Flint (from Dakota). Weight in hills per acre do drills do	May 23.	June 3.	July 27.	Sept. 4.	Oct. 6.	5½	Oct. 13.	10 570 7 272½	Glazed; ears medium and well filled.
North Dakota. Weight in hills per acre do drills do	May 23.	June 4.	July 30.	Sept. 8.	Oct. 8.	6	Oct. 13.	10 1175 7 1042½	Glazed; ears medium; well filled out to tips.
Dakota Gold Coin. Weight in hills per acre do drills do	May 23.	June 3.	Aug. 6.	Sept. 17.		6½	Oct. 13.	11 1897½ 11 110	Roasting ears when cut; ears medium large, but not very well filled out to tips.
Large Eight-rowed. Weight in hills per acre do drills do	May 23.	June 7.	Aug. 3.	Sept. 27.		8	Oct. 13.	19 115 18 190	Roasting ears when cut; ears short but thick, and well filled.
Egyptian. Weight in hills per acre do drills do	May 23.	June 6.	Aug. 11.	Oct. 1.		10	Oct. 13.	19 115 17 1860	Large, well-formed ears, but not good roasting ears when cut.
Extra Early Cory. Weight in hills per acre do drills do	May 23.	June 8.	July 14.	Aug. 7.	Aug. 27.	4½	Oct. 13.	4 772½ 4 1157½	Good roasting ears Aug. 10; ears well filled to tip.
Pee and Kay. Weight in hills per acre do drills do	May 25.	June 5.	Aug. 4.	Sept. 4.	Oct. 4.	10½	Oct. 13.	10 1628½ 11 1650	Roasting ears when cut; did not germinate well.
Early Mammoth. Weight in hills per acre do drills do	May 25.	June 5.	Aug. 11.	Sept. 22.		10½	Oct. 13.	16 97½ 14 902½	Roasting ears when cut; stalks slender; ears good size, but not well filled to tips.
Asylum. Weight in hills per acre do drills do	May 25.	June 8.	Aug. 9.	Sept. 1.	Sept. 24.	11½	Oct. 13.	17 1846½ 15 1212½	Glazed Oct. 4; ears long and well filled.

CORN—Concluded.

Variety.	Planted.	Up	Tasselled.	Early Milk.	Late Milk.	Height.	Cut.	Weight.		Remarks.
						Feet.		Tons.	Lbs.	
Potter's Excelsior	May 25.	June 8.	Aug. 17.	Sept. 20.	Roasting, Oct. 1.	12	Oct. 13.	19	1325	Nearly glazed when cut; ears medium and fairly well filled out to tip.
do drills								20	1580	
White Flint (Dakota)	May 25.	June 8.	July 25.	Aug. 29.	Sept. 29.	7	Oct. 13.	10	570	Glazed when cut; ears medium long, but slender; not well filled to tip.
do drills								9	1360	
Stowell's Evergreen.	May 25.	June 10.	Aug. 17.	Sept. 30.	Roasting, Oct. 12.	13½	Oct. 13.	23	1975	Roasting ear when cut; ears large and fair length, but poorly filled.
do drills								20	480	
Cinquantine.										Did not germinate.

CORN.

This has been a very favourable season for corn; there was sufficient moisture, and more than the usual amount of summer heat. There were thirty-three varieties tested, both in hills and drills. The hills were planted 3 feet apart each way, and four plants to a hill; the drills were 3 feet apart, and the plants about 6 inches apart in the row. All made a strong growth, except the Cinquantine, which did not germinate. Quite a number of the early varieties ripened corn. This was the second crop on the land, and all were treated alike—clean cultivation, without any fertilizer. The corn that was glazed was husked, and kept for chicken feed, but was too much mixed to be of use for seed.

Above is the weight of each variety, with other particulars as to date of planting, tasselling, &c.

PEASE AND TARES.

One variety of tares and five of field pease have been tested. Six pounds of seed of each variety were sown. All were sown broadcast. Soil, gravelly loam; first broken fall of 1889; produced a crop of roots in 1890. The yield, as will be seen, is an extraordinary one. The area sown, date of sowing and yield is as follows:—

Variety.	When Sown.	No. of Lbs. Sown.	Rate per Acre Sown.	Area Sown.	Harvested.	Yield.	Yield per Acre.	No. of Days to Mature.
			Lbs.	Acres.		Lbs.	Bush. lbs.	
White tares	April 28....	6	90	$\frac{1}{15}$	August 28..	282	70 30	140
Crown pease	do 28....	6	150	$\frac{2}{25}$	do 20..	279	116 15	132
Prussian Blue.....	do 28....	6	150	$\frac{1}{25}$	do 20..	269 $\frac{1}{2}$	112 17 $\frac{1}{2}$	132
Mummy	do 28....	6	150	$\frac{1}{25}$	do 28..	309 $\frac{1}{2}$	128 51 $\frac{1}{2}$	140
Prince Albert.....	do 28....	6	150	$\frac{2}{25}$	do 20..	277	115 25	132
White Marrowfat....	do 28....	6	180	$\frac{1}{30}$	do 21..	210	105 00	133

LATHYRUS SYLVESTRIS WAGNERI.

One hundred plants of this new fodder plant were received and planted in the fall of 1890. Only about 60 plants lived through the winter, owing to the heaving of the ground, but these made a strong, vigorous growth and fruited this year, and the plants being now thoroughly rooted are not likely to suffer from frost this winter. Owing to the scarcity of the plant and seed, it was thought best to leave ours to mature the seed, and we have now about 20 ounces of seed.

The straw was still green and succulent when the seed was harvested, and we cut it and offered some to our cattle and horses, but they would not eat it, and we were unable to cure it owing to continued rainy weather. Next year it is proposed to try it in a silo. If it makes good ensilage it will be valuable on account of the large quantity which can be taken off the land. The vines this year averaged from 4 to 6 $\frac{1}{2}$ feet in length.

TURNIPS.

Fourteen varieties of turnips were sown, two sowings of each sort being made, the first on 29th May and the second on 12th June. The soil was a sandy loam, which had been seeded to timothy many years since, but was grown up to brush and weeds. Ploughed in the fall of 1889 and cropped in 1890; ploughed again in the fall of 1890, and thoroughly harrowed before seeding last spring. This land has had no manure. The turnips were sown in drills 30 inches apart and kept

clean, all being treated alike. There were no extra large roots, but a fair average size over all, and uniformly smooth. The following is the result in each case:—

Variety.	Sown.	Harvested.	Weight per Acre		Yield per Acre.	
			Tons.	lbs.	Bush.	lbs.
Highland Prize (Simmers).....	May 29....	Nov. 11....	32	1,002	1,083	22
	June 12....	do 11....	28	1,684	961	24
Hartley's Bronze Top (Pearce).....	May 29....	do 11....	26	96	868	16
	June 12....	do 11....	20	975	682	55
Elephant (Bruce).....	May 29....	do 11....	35	400	1,173	20
	June 12....	do 11....	26	1,592	893	12
Elephant (Pearce).....	May 29....	do 11....	36	512	1,208	32
	June 12....	do 11....	26	1,328	888	48
Selected Purple Top (Steele)	May 29....	do 11....	48	448	1,607	28
	June 12....	do 11....	35	400	1,173	20
Clyde Improved (Evans).....	May 29....	do 11....	38	1,616	1,293	36
	June 12....	do 11....	28	788	946	28
Imperial Swede (Webb).....	May 29....	do 11....	36	600	1,210	00
	June 12....	do 11....	26	624	877	04
Giant King (Webb)	May 29....	do 11....	32	1,064	1,084	24
	June 12....	do 11....	27	472	907	52
Mammoth Purple Top (Evans).....	May 29....	do 11....	49	1,440	1,657	20
	June 12....	do 11....	34	992	1,149	52
Elephant (Steele)	May 29....	do 11....	35	1,623	1,193	43
	June 12....	do 11....	33	1,854	1,130	54
Marquis of Lorne (Bruce)	May 29....	do 12....	34	1,784	1,163	04
	June 12....	do 12....	32	1,208	1,086	48
Skirving's Improved (Steele).....	May 29....	do 12....	36	1,128	1,218	48
	June 12....	do 12....	30	1,072	1,017	52
Prize Purple Top (Rennie).....	May 29....	do 12....	40	1,136	1,352	16
	June 12....	do 12....	30	1,424	1,023	44
Bangholm (Simmers).....	May 29....	do 12....	33	704	1,111	44
	June 12....	do 13....	29	1,840	997	20

These weights show a marked difference in each case in favour of early sowing.

MANGELS.

Fourteen varieties of mangels were sown, in drills $2\frac{1}{2}$ feet apart. The land selected for this test was a sandy loam of uniform quality and condition. It received a light dressing of stable manure in the spring of 1890, followed by a hoed crop. Was ploughed in the fall of 1890, and well harrowed previous to sowing last spring. All were treated alike in every respect.

A second sowing of each variety was made two weeks after the first.

Although there was a short drought in mid-summer, yet the season was a favourable one for root crops.

The results in this case indicate that for this season, although the crop was heavy, the first sowing was too early. It is probable that the cold, wet weather of early spring injured the seed first sown.

Variety.	Sown.	Harvested.	Weight per Acre.		Yield per Acre.	
			Tons.	lbs.	Bush.	lbs.
Long Red (Steele).....	April 9.....	Nov. 13.....	45	1,232	1,520	32
	do 23.....	do 13.....	48	1,328	1,622	08
Long Red (Simmers).....	do 9.....	do 13.....	45	904	1,515	04
	do 23.....	do 13.....	50	1,376	1,689	36
Yellow Intermediate (Steele).....	do 9.....	do 13.....	39	1,200	1,320	00
	do 23.....	do 13.....	37	976	1,249	36
Canadian Giant (Pearce).....	do 9.....	do 13.....	43	196	1,436	36
	do 23.....	do 13.....	50	276	1,671	16
Long Red (Rennie).....	do 9.....	do 13.....	49	208	1,636	48
	do 23.....	do 13.....	52	720	1,745	20
New Giant Yellow (Bruce).....	do 9.....	do 13.....	31	900	1,048	20
	do 23.....	do 13.....	26	800	880	00
Gate Post (Bruce).....	do 9.....	do 14.....	51	960	1,716	00
	do 23.....	do 14.....	57	1,632	1,927	12
Carter's Warden (Bruce).....	do 9.....	do 14.....	48	800	1,613	20
	do 23.....	do 14.....	44	1,408	1,490	8
Yellow Globe (Rennie).....	do 9.....	do 14.....	69	862	2,314	22
	do 23.....	do 14.....	61	144	2,035	44
Golden Tankard (Evans).....	do 17.....	do 14.....	52	1,776	1,762	56
	do 29.....	do 14.....	52	1,248	1,754	18
Mammoth Long Red (Evans).....	do 17.....	do 14.....	51	1,488	1,724	48
	do 29.....	do 14.....	52	896	1,748	16
Mammoth Long Red (Webb).....	May 8.....	do 14.....	61	232	2,037	12
	do 22.....	do 14.....	55	1,954	1,865	54
Champion Yellow Globe (Webb).....	do 8.....	do 14.....	56	376	1,872	56
	do 20.....	do 14.....	48	1,264	1,617	44
Yellow Tankard (Webb).....	do 11.....	do 14.....	41	16	1,366	56
	do 25.....	do 14.....	38	566	1,276	00

CARROTS.

Fourteen varieties of carrots were sown. Two sowings of these were made in rows 1 foot 6 inches apart. Soil a sandy loam; manured in the spring of 1890 and produced a crop of potatoes. Was ploughed in the fall of 1890 and thoroughly harrowed last spring before the carrots were sown. The soil and treatment was the same in each case.

The yield of each variety is given below.

Variety.	Sown.	Harvested.	Weight per Acre.		Yield per Acre.	
			Tons.	lbs.	Bush.	lbs.
Vosges (Bruce).....	April 9.....	Nov. 16.....	26	1,093	884	53
	do 23.....	do 16.....	16	1,146	552	26
Vosges (Simmers).....	do 9.....	do 16.....	22	1,906	765	6
	do 23.....	do 16.....	18	1,693	628	13
Vosges (Rennie).....	do 9.....	do 16.....	31	513	1,041	53
	do 23.....	do 16.....	21	1,266	721	6
Guerande (Steele).....	do 9.....	do 16.....	30	1,560	1,026	00
	do 23.....	do 16.....	26	213	870	13
Guerande (Rennie).....	do 9.....	do 16.....	26	1,386	889	46
	do 23.....	do 16.....	21	240	704	00
Improved Short White (Steele).....	do 9.....	do 16.....	18	746	612	26
	do 23.....	do 16.....	19	1,306	655	6
Half Long Luc (Rennie).....	do 9.....	do 16.....	15	1,808	530	8
	do 23.....	do 16.....	10	1,706	381	46
Green Top Orthe (Pearce).....	do 9.....	do 16.....	20	1,213	686	53
	do 23.....	do 16.....	20	40	666	40

CARROTS—*Concluded.*

Variety	Sown.	Harvested.	Weight per Acre.		Yield per Acre.	
			Tons.	lbs.	Bush.	lbs.
Chantenay (Bruce).....	April 9	Nov. 16	25	1,773	862	53
	do 23	do 16	15	1,533	525	33
White Intermediate (Rennie).....	do 9	do 16	19	133	635	33
	do 23	do 16	20	1,800	696	40
James Intermediate (Pearce).....	do 9	do 16	22	440	740	40
	do 23	do 16	15	506	508	26
Mitchell's Perfected (Pearce).....	do 9	do 16	14	1,920	498	40
	do 23	do 16	15	1,385	556	25
Selected Altringham (Webb).....	do 9	do 16	24	722	812	2
	do 23	do 16	16	256	537	36
Yellow Intermediate (Webb).....	do 9	do 16	27	333	905	33
	do 23	do 16	20	1,444	690	44

In these also, with two or three exceptions, the results are largely in favour of early sowing.

SUGAR BEETS.

Owing to the season being well advanced when the seed was received only one sowing was made. It was sown in rows $2\frac{1}{2}$ feet apart and the plants thinned to about 5 inches in the row. The soil was a gravelly loam. The land was broken up in the fall of 1889 and planted with fodder corn in 1890, but has not had any manure. Yield per 3 rows of 66 feet:—

German.....	Lbs.
French.....	455
Yield per acre:—	515

	Tons.	Lbs.	Bush.	Lbs.
German.....	19	1,640	660	40
French.....	22	320	755	20

The difference in yield may, perhaps, be accounted for by the French beets having been sown alongside of a row of apple trees which had received a light dressing of burned clay and ashes in the fall of 1890.

POTATOES.

There were 23 varieties of potatoes planted for testing.

The seed was cut to two eyes to the set and planted 1 foot apart in the row, and rows 3 feet apart. Two rows 90 feet long of each variety were planted. The soil, a dry sandy loam, had produced a crop of beans in 1890, and had received a light dressing of manure in the fall after the bean crop was harvested, which was thoroughly worked into the land with the disc and drag harrows.

The potatoes were planted 25th May. Each variety was tested from time to time, beginning 28th July, and the size and quality noted; also the percentage of merchantable potatoes and of rotten, if any.

Sixty-six feet of two rows of each variety was dug from 17th to 24th October, and the produce weighed. Below will be found the weight of sound and rotten potatoes of each variety; also the percentage of merchantable potatoes at each digging for testing purposes, as well as at the final digging, with note of table qualities of each variety.

POTATOES.

Variety.	Planted.	Mature.	Harvested.	Sound Tubers.	Rotten Tubers.	Total.	Yield per Acre.	Bush. lbs.	Per cent Marketable at each Test.	Rotten.	Remarks.
Vanguard	May 25	Sept. 14	Oct. 16	68	82½	150½	275	55	50	p. c.	Medium growth of tops ; large tubers ; very rough and knotty, and uneven in size.
									40	.....	First test, 28th July ; soft and watery ; rough and uneven.
									40	5	Second test, 5th August ; quality, poor.
									40	10	Third test, 19th August ; quality better, but not good. Fourth test, 22nd December ; wet and soft when cooked ; a good many rotted since digging.
Rural Blush	May 25	Sept. 20	Oct. 16	170	35	205	375	50	75	.....	Strong growth of tops ; tubers of a large average size ; 75 per cent marketable at digging.
									50	.....	First test, 3rd August ; too soft for table use.
									60	.....	Second test, 17th August ; good average size ; quality, poor.
									70	.....	Third test, 29th August ; large average size ; dry and fairly good for table, but many hollow in heart. Fourth test, 19th December ; quality not as good as before digging ; many turning black in centre ; 25 per cent rotted since digging.
White Star	May 25	Sept. 24	Oct. 16	127	51	178	326	20	45	.....	Medium growth of tops ; tubers very knotty and uneven in size.
									25	.....	First test, 8th August ; flavour good, but rather soft and immature ; size, medium to small.
									35	.....	Second test, 24th August ; improving in size and quality.
									45	25	Third test, 31st August ; quality fair, but undesirable on account of rough, knotty shape. Fourth test, 20th December ; quality, poor ; a good many rotten.
Clarke's No. 1	May 25	Sept. 19	Oct. 16	141	38	179	328	10	90	.....	Medium growth of tops.
									25	.....	First test, 8th August ; quality, poor ; size, small to medium.
									30	.....	Second test, 21st August ; improving in size and quality.
									80	15	Third test, 2nd September ; average size ; dry and mealy ; good flavour. Fourth test, 21st December ; medium in quality ; rotting since digging.
Early Maine	May 25	Aug. 30	Oct. 16	78½	45	123½	234	40	70	.....	Medium growth of tops ; tubers fair average size, but shape rough and knotty.
									20	.....	First test, 28th July ; too green and soft for table use ; size, small average.
									35	2	Second test, 17th August ; quality, fair ; size, fair average.
									60	3	Third test, 2nd September ; quality, good ; boiled dry and mealy ; fair average size. Fourth test, 27th December ; good quality ; dry and mealy when cooked ; good flavour.

POTATOES.

Variety.	Planted.	Matured.	Harvested.	Sound Tubers.	Rotten Tubers.	Total.	Yield per Acre.	Per cent Market- able at each Test.	Rotten.	Remarks.
Halton Seedling.....	May 25 Sept.	4 Oct.	16	136 $\frac{3}{4}$	47 $\frac{1}{4}$	184	Bush. 337 20	70	D. C.	Growth of tops medium strong; tubers fair average size and good shape.
										First test, 3rd August; good average size; smooth tubers; when cooked, pretty dry.
										Second test, 21st August; good average size; dry and mealy.
										Third test, 2nd September; good average size; good flavour; cooked dry and mealy.
London.....	May 25 Aug.	23 Oct.	16	106 $\frac{1}{4}$	47 $\frac{1}{4}$	154	282 20	50		Fourth test, 21st December; cooked dry and mealy; keeping well.
										Feeble growth of tops; smooth, even-shaped potatoes.
										First test, 4th August; medium size and very even; cooked dry and mealy.
										Second test, 18th August; smooth, even tuber, and of average size; cooked dry.
Algoma.....	May 25 Sept.	15 Oct.	16	144	56 $\frac{3}{4}$	170 $\frac{3}{4}$	312 72	75		Third test, 4th September; fair average size; cooked dry.
										Fourth test, 22nd December; good table potato; keeping well.
										Growth fair; medium tops.
										First test, 11th August; poor flavour; very uneven in size.
Ohio Gunner.....	May 25 Sept.	1 Oct.	20	43 $\frac{1}{4}$	40 $\frac{1}{4}$	84	154 ..	40		Second test, 20th August; very uneven in size; poor flavour.
										Third test, 14th September; not a desirable potato; flavour poor; does not cook dry; large tubers, hollow in the heart.
										Fourth test, 4th December; rotting rapidly at this date, and does not cook dry; a very poor potato.
										Weak growth of tops; size, from large to very small; the large tubers are frequently hollow hearted.
Lee' Favourite.....	May 25 Sept.	10 Oct.	20	133 $\frac{1}{4}$	45 $\frac{1}{4}$	188 $\frac{1}{2}$	336 25	75	1	First test, 6th August; good flavour and pretty dry.
										Second test, 20th August; good flavour and dry, but very uneven in size.
										Third test, 13th September; dry and mealy; good flavour.
										Fourth test, 10th December; very good.
Delaware.....	May 25 Sept.	25 Oct.	20	140	88 $\frac{1}{2}$	228 $\frac{1}{2}$	427 15	80	3	Tubers, medium to large; fair growth of tops.
										First test, 2nd August; large average size; cooked dry and floury; good flavour.
										Second test, 21st August; medium to large; good flavour; dry and floury.
										Third test, 2nd October; large, good quality.

Rose's New Giant	May	25 Sept.	27 Oct.	20	138½	52½	191½	350	37½	50	3	Second test, 22nd August; improving in size, but not in quality; commencing to rot.
										60	10	Third test, 15th September; not good in quality.
										25	25	Fourth test, December; not dry or mealy, and poor in flavour; rotting rapidly.
										80		Strong growth of tops; tubers very uneven, rough and knotty.
										50	1	First test, 6th August; not dry; poor in quality.
										50	3	Second test, 23rd August; tubers large and soft; poor in quality.
										60	5	Third test, 20th Sept.; tubers large, rough and knotty; quality, poor.
Early Eating	May	25 Sept.	20 Oct.	20	197½	33	230½	423	2½	85	10	Fourth test, 31st December; cooked dry, but inferior in flavour.
										40		Growth of tops, fair; tubers medium in size and a large number in the hill.
										60		First test, 8th August; tubers small to medium; not dry when cooked, but good flavour.
										75	1	Second test, 30th August; improving in size and dryer when cooked
												Third test, 23rd September; medium in size, but very uniform; dry and floury when cooked and good flavour.
Thorburn	May	25 Sept.	27 Oct.	20	187½	30½	218	399	40	90		Fourth test, 25th December; a good potato.
										75	1	Nearly all large and smooth; fair growth of tops.
												First test, 9th August; large average; smooth, fine-looking potato, but does not cook dry.
										80	2	Second test, 24th August; large, smooth, but not dry; poor flavour.
										85	5	Third test, 17th September; large, smooth, fine-looking potato; poor for table.
Early Rose	May	25 Sept.	7 Oct.	20	174	30½	214½	374	27½	90		Fourth test, 3rd December; not good; large number rotten.
										60		Fair growth of tops.
										75	1	First test, 2nd August; dry and mealy; large average in size.
												Second test, 25th August; dry and mealy; good flavour.
												Third test, 22nd October; dry and good flavour; large, smooth potato.
Early Puritan	May	25 Sept.	20 Oct.	20	100½	23½	122	223	40	80		Fourth test, 19th December; keeping well.
										60		Strong growth of tops; fair average size; even, smooth potato.
												First test, 8th August; fair size; very few; too small for table; dry and good flavour.
										75		Second test, 26th August; fair size; dry and good flavour.
												Third test, 4th December; good flavour; dry when cooked; keeping well.
Chicago Market	May	25 Sept.	27 Oct.	21	95	9½	104½	191	35	75		Growth of tops, fair.
										60		First test, 9th August; few in a hill, but even in size and smooth; quality, fair.
												Second test, 24th August; large average in size; flavour good, but not dry when cooked.
										75	1	Third test, 27th October; good average size; flavour good; quality, fair.
Empire State	do	25 do	20 do	21	169	24	193	353	50	85		Fourth test, 26th December; good size; quality, good.
										25		Vigorous growth of tops.
										35	2	First test, 11th August; tubers small to medium; not a good potato.
										60	8	Second test, 21st August; improving in size and quality.
											20	Third test, 31st August; quality fair; flavour medium.
											20	Fourth test, 25th November; fairly good, but rotting.

POTATOES.

Variety.	Planted.	Mature.	Harvested.	Sound Tubers.	Rotten Tubers.	Total.	Yield Per Acre.	Per cent Marketable at each Test.	Rotten.	Remarks.
Brownell's Winner . . .	May 25	Sept. 23	Oct. 21	Lbs. 97	Lbs. 50½	Lbs. 147½	Bush. Lbs. 270 25	60 30 35 50	p. c. ... 2 5	Vigorous growth of tops. First test, 10th August; tubers small to medium; quality poor. Second test, 27th August do do Third test, 1st October; small average size; quality poor. Fourth test, 29th December; quality poor.
Rochester Favourite. In row, 66 ft.; seed given by Mr. F. Pass- ingham, of Agassiz.	do 25	do 26	do 21	Lbs. 120	Lbs. 13	Lbs. 133½	Bush. Lbs. 244 45	85 70	... ...	Vigorous growth of tops. First test, 30th July; too young to be dry, but quality fair; size small to medium. Second test, 19th August; improving in size and quality. Third test, 31st August; large to medium in size; flavour good but not dry when cooked; the large tubers very rough and knotty.
Green Mountain . . . 1 row, 66 ft.; seed given by Mr. F. Pass- ingham, of Agassiz.	do 25	do 27	do 21	Lbs. 120	Lbs. 34	Lbs. 154	Bush. Lbs. 282 20	80 30	... 1	Fourth test, 7th January; quality good; keeping very well. Fair growth of tops. First test, 18th August; small to medium in size; cooks dry and floury; good flavour. Second test, 1st September; dry and mealy; good flavour; improving in size. Third test, 25th September; improving in size; smooth; fine cooking potato.
Ohio Gunner . . . 1 row, 66 ft.; seed given by Mr. F. Pass- ingham, of Agassiz.	do 25	...	...	Lbs. 27½	Lbs. 3½	Lbs. 30¾	Bush. Lbs. 120 5	75 30 50 60	... ... ... ...	Fourth test, 30th November; a good potato. Fair growth of tops; size of tubers, large to medium small. First test, 1st August; medium in quality; not very dry. Second test, 3rd September; quality fair; not very dry. Third test, 8th October; improving; medium in flavour. Fourth test, 1st December; fairly good.
Lee's Favourite . . . From Judge Porter, Quebec.	do 25	Sept. 10	do 21	Lbs. 40	Lbs. 6½	Lbs. 46½	Bush. Lbs. 170 30	85 50	... 1	Fair growth of tops; tubers medium to large. First test, 3rd August; fair average size; dry and floury when cooked.
								60 75	2 2	Second test, 22nd August; size medium; quality good. Third test, 1st October; good quality; dry, and good flavour. Fourth test, 10th December; good potato; keeping well.

FRUIT TREES.

Apples.

When the report for 1890 was issued there were 97 varieties of apples and 321 trees on the experimental farm. Since then two have been destroyed by cattle and five have died from other causes. The remaining 314 have made a strong vigorous growth. From the Central Experimental Farm and other sources there have been added to the list 79 varieties of standard apples, and four of crabs, making a total of 176 varieties of standard apples, and 10 varieties of crabs, in all 582 apple trees at present growing on the farm. A few of these have been received this fall; the greater part were received and planted last spring, and like those planted the previous year, have made a strong, healthy growth.

The following is a list of those received this year:—

Hominy,
Summer Queen,
American Summer Pearmain,
Carter's Blue,
Ortley,
Buckingham,
Red Winter Pearmain,
Bradford's Best,
Winesap,
Missouri Pippin,
Paradise Sweet,
Huntsman's Favourite,
Southern Limbertwig,
Shirley,
Lincoln,
Bledsoe,
Loy,
Steward,
York Imperial,
Yate (crab),
Martha (crab),
Bieloe Naliv (Solovieff),
Skrisch (Grell),
Putim (Tchernigov),
Extra (Solovieff),
Borovinka (Solovieff),
Golden Stone (Niemitz),
Grushevka (Solovieff),
Gremuch,
Skvosnina (Grell),
Gul Pembe,
Lebedka,
Plikanoff,
Borodovka,
Niemitz,
Steklianka,
Kara Synap, B.
Paperovka,
Dvinnee,
Sklanka,
Skrut (Grell),
Sara Synap.

Jacob Sweet,
Wheneray's Late Red,
Glowing Coal,
Scarlet Cranberry,
Ruby Gem,
Ivanhoe,
Turnbull Sweet,
Munson's Sweet,
Danver's Sweet,
Maverick's Sweet,
Nickajack,
Arkansas Black,
Lowell,
Benoni,
Dominie,
Flory Bellefleur,
Forest,
Willow Twig,
Carlough,
Van Wycke (crab),
Gideon (crab),
Plodovitka. (Solovieff),
Hara Synap. A.,
Arkad (Grell),
Titovka Koslov,
Koritchnevoe,
Somnitelnoe,
Plodovitka (Koslov),
Miron (Grell),
Stone Antonovka (Tchernigov),
Russian Tyrol,
Arkad (Solovieff),
Zolotoreff,
Titovka (Solovieff),
Lapough (Koslov),
Naliv, Aus-jutin,
Chelebi (Niemitz),
Miron (Solovieff),
Aport (Grell),
Borovinka (Koslov),
Plodovitka (Solovieff),

Pears.

One standard pear tree died since my last report; all others, both standard and dwarf, have made a vigorous growth.

This year there were received 69 standard and 28 dwarf pear trees; a number of the standards are of varieties already planted in the pear orchard, but these are for testing on the bench lands, where they will be planted as soon as spring opens.

The collection of standard pears consists now of 54 varieties and 248 trees, and dwarf pears of 22 varieties and 66 trees.

Plums and Prunes.

All the plum trees mentioned in my report of last year are alive, and have made a very vigorous growth, and two trees, one each of the Damson and Moore's Arctic, fruited this year, and if no unfavourable conditions arise, there is likely to be quite a crop of plums next season.

There has been added to this orchard a number of new varieties, among them, four of the newly introduced Japanese plums. The collection now comprises 188 trees and 68 varieties.

The following are those received this year:—

Lone Star,	Transparent,
Wooten,	Quaker,
Forest Garden,	Golden Beauty,
Wayland,	Wild Goose,
Deep Creek,	Mariana,
De Soto,	Robinson,
Pottawattamie,	Garfield,
Yosobe,	Hattankio,
Shiro Smomo,	Clyman.

Cherries.

Since my last report three cherry trees have died. All others have made a strong healthy growth. The Elton, Yellow Spanish, Montmorency and Willamette produced a few cherries each. The robins did not allow them to remain long enough on the trees to ripen. An effort will be made to protect the fruit next year. Ten trees, 2 each of 5 varieties, have been added to the collection of cherry trees this year. There are now 46 varieties and 144 trees.

The new varieties are: Luelling, Belle de Choisy, Centennial, Ohio Beauty and Belle Magnifique.

FRUIT TREES PLANTED ON THE BENCH.

Figs, peaches, apricots, nectarines, grapes and cherries planted on the bench land, have made very satisfactory progress.

The Japanese orange was frozen to the snow line in February, but it threw out shoots from the ground, and has made a fair growth during the past season.

The peach trees were in bloom, from five to seven days earlier on the bench land than the same varieties planted in the valley, and were not affected by the cold wave in the beginning of May, which blighted the fruit prospects of peach trees in the valley.

Notes have been kept of the curl leaf, in 1890 and 1891, on the peaches, and nectarines, both in the valley, and on the bench. It has not been very severe in either place.

Below is a list of the varieties that have been free from curled leaf in both years, on the bench and in the valley. Many sorts were only slightly affected—from 5 to 10 per cent of the leaves. Several varieties were only slightly affected in one place,

but not in the other. These are noted, as well as some that were healthy, but were not planted in both localities.

Variety.	Free in the Valley.	Free on the Bench.
	Year.	Year.
Foster.....	1890 and 1891	1890 and 1891
Early Crawford.....	do do	do do
Schumaker.....	do do	do do
Coolidge's Favourite.....	do do	do do
Stump.....	*do do	do do
Surprise Melocoton.....	do do	None planted on bench.
Malta.....	do do	do do
Alexander.....	do do	1890 and *1891
Early Barnard.....	do do	*1890 do
Lemon.....	do do	1890 do

*Slightly curled.

Peaches.

The peaches have done extra well this year. Only one tree died, and each one living has made a strong, healthy growth, and with a favourable season in 1892 we expect most of those planted in 1890 to fruit.

There have been 31 varieties, 205 trees, added to our collection of peaches, making 116 varieties and 412 trees.

In an account of trees planted on the bench will be found a list of the peach trees affected by curl leaf. The attack was not so severe this summer, either on the bench or in the valley, as in 1890.

Below is a list of the names of the new peaches:—

Chinese Cling,	Columbia,
William's Favourite,	Scruggs,
Miss Lolo,	Gaylord,
Mamie Ross,	Crothers,
Bishop,	Walker,
Eldred,	Infant Wonder,
Minnie,	Levy's Late,
Amelia,	Husted's Early,
June Rose,	Williamson's Choice,
Family Favourite,	Early Charlotte,
Jennie Worthen,	Mrs. Brett,
Gen. Taylor,	Gov. Briggs,
Gen. Lee,	Old Mixon, Cling,
Sylphide,	Bequett Free,
Bequett Cling,	Onderdonk,
Orange Cling	

The peach trees, Mountain Rose, Hilborn, Wager, Foster and Waterloo, blossomed and bore fruit. In most cases not more than two peaches were allowed to mature.

The following is the order of their ripening:—Hilborn, 12th August; Waterloo, 25th August; Mountain Rose, 31st August; Foster, 1st September.

Nectarines.

No new varieties of nectarines have been added to the collection this season. There are now in the orchard 12 varieties and 26 strong, healthy trees. Downton and Early Violet were entirely free from curl leaf; all the others were affected a little, but it did not appear to injure them for all have since made a vigorous growth.

Apricots.

The soil and climate at Agassiz appear to be very suitable for a healthy growth of this tree. All those planted have done remarkably well.

A severe wind storm struck the apricot orchard on 23rd July, breaking two very promising trees off at the ground, entirely destroying them. This is the only loss which has yet occurred in this fruit. Two varieties have been added to the orchard during the past season, making 45 trees and 19 varieties in all. Myers Early and Eureka are the newly-added sorts.

Quinces.

The quinces have made a healthy growth. No new varieties have been added this year, and none have died. There are now on the farm 6 varieties and 13 trees.

FIGS.

The two varieties of figs reported on last year have made an extra fine growth this season. The frost of last February did not injure even the terminal buds. In the spring two each of the following varieties were planted and have done well:—

Angelique,
Castle Kennedy,

Brown Ischia,
Col. Signora de Bianca.

This fall the following varieties have been received. They are "heeled in" and will be planted in the spring:—

Adriatic,
Blue Celestial,

Black California,
Marseilles,

San Pedro.

making a total of 22 trees and 11 varieties.

The following other new fruits have been received and "heeled in," ready for spring planting:—

Pomegranate—2 Spanish Ruby.

Citrus Trifoliata—2 Hardy Orange.

Dwarf Juneberry—6 Success.

Japanese Persimmons, 2 each of the following sorts:—Daidai Maru, Hachija, Hyakume, Kurokume, Tane Nashi, or seedless; Yedoichi, Yemon, Zin Ji Maru.

GRAPE VINES.

All of the grape vines planted are alive, and almost all have made a healthy growth. There are now on the farm 224 vines of 85 varieties. The following varieties have been added this year:—2 Clinton, crossed with Muscat Hamburgh; 1 Abyssinia (Haskins); 1 Seedling No. 1, crossed with Muscat Hamburgh; 2 Improved Wild Grape (Gibb); 2 Janesville.

STRAWBERRIES.

The plot chosen for the small fruits, when there is long-continued heavy rains, receives a considerable quantity of water from the mountain, and when the frost came in February last the land was so full of water that it heaved very badly, and the strawberries and other small fruits which had been set out in the fall of 1890 were thrown out of the ground and many of them killed.

Those alive this fall are well-rooted, vigorous plants, and will furnish material for a new plantation, which will be made next summer.

The following is a list of those planted, the number of each kind, and the number alive in May :—

Variety.	Planted.	Alive.	Variety.	Planted.	Alive.
May King.....	200	51	Pine Apple.....	100	13
Hathaway.....	200	64	Captain Jack.....	200	46
Black Giant.....	200	28	Wilson.....	200	98
Bubach.....	200	98	Sharpless.....	200	61
Seneca Queen.....	200	73	Norman.....	200	10
Manchester.....	200	106	Itaska.....	200	42
James Vick.....	200	124	New Dominion.....	200	30
Woodruff.....	200	43	Jessie.....	200	23
Jumbo.....	200	54	Warfield No. 2.....	100	5
Emerald.....	200	91	Haverland.....	100	0
Chas. Downing.....	200	96	Connecticut Queen.....	200	51
Photo.....	200	9	Prince of Berries.....	100	15
Cumberland Triumph.....	200	28	Osceola.....	100	16
Windsor Chief.....	200	29	Old Ironclad.....	200	25
Atlantic.....	200	91	Crescent.....	200	40
Wonderful.....	200	72	Mary Fletcher.....	200	54
Maggie.....	200	21	Jersey Queen.....	100	45
Belmont.....	100	4	Green Prolific.....	100	1
Bordelaise.....	100	11	Mrs. Garfield.....	200	81
Gandy.....	100	9			

RASPBERRIES.

The following list comprises the raspberries now growing on the Experimental Farm, showing the number planted in 1890 and alive in 1891. Most of these have since made vigorous growth and are expected to fruit well next season :—

Variety.	Planted.	Alive in May, 1891.	Variety.	Planted.	Alive in May, 1891.
Cuthbert.....	136	48	Brinckle's Orange.....	34	12
Marlboro'.....	34	18	Souhegan.....	34	1
Turner.....	34	17	Golden Queen.....	68	39
Caroline.....	34	30	Shaffer's Colossal.....	68	7
Brandywine.....	34	27	Mammoth Cluster.....	34	7
Hebner.....	34	29	Clark.....	34	10
Saunders' Seedlings, 6 varieties	33	23	Hornet.....	34	10
Hansell.....	34	26	Franconia.....	21	2
Gregg.....	34	12	H. R. Antwerp.....	34	2

The following have been received this fall and will be planted in the spring, making in all 33 varieties of red raspberries and black caps :—

Variety.	Number.	Variety.	Number.
Kansas Black Cap.....	12	Jackson's May King.....	12
Older.....	12	Pahner.....	12
Lovett.....	12	Ada.....	12
Thompson's Early Prolific.....	12	Cromwell.....	13
Smith's Prolific.....	12	Progress.....	12

BLACKBERRIES.

Like the strawberries, these suffered considerably last winter from heaving out, and those not killed were so feeble that but few made a vigorous growth.

Variety.	Planted.	Alive 9th May.	Variety.	Planted.	Alive 9th May.
Snyder.....	26	23	Wilson Jr.....	204	94
Agawam.....	26	24	Wilson's Early.....	168	54
Taylor's Prolific.....	16	14	Lawton.....	68	63
Gainor.....	34	1	Erie.....	68	65
Western Triumph.....	34	0	Early King.....	68	62
Stone's Hardy.....	22	5	Minnewaska.....	22	4
Early Cluster.....	24	2	Early Harvest.....	24	32
Tecumseh.....	10	2	Crystal White.....	16	2
Kittatinny.....	136	23	Lucretia Dewberry.....	50	23

The part of the plot where Wilson Jr., Wilson's Early, Lawton, Erie and Early King were planted was a little the highest and driest, which is probably the reason why a larger percentage of these sorts lived.

The following new varieties were received this year:—Lovett's Best, Thompson's Early, Evergreen, Dallas, Child's Tree, Brunton.

BLACK CURRANT.

The black currant does not appear to have suffered from the heaving of the ground as the other small fruits did, as all have made a healthy, vigorous growth. Last spring 15 new varieties of Saunders' Seedlings were received from the Central Experimental Farm, which makes the collection of this fruit fairly large, numbering nearly 200 bushes and 29 varieties.

RED AND WHITE CURRANTS.

The currants stood the winter better than the berries. Very few of them died, but all were considerably enfeebled, and did not make a very vigorous growth. As they are now well rooted they will, it is hoped, come through this winter in good condition.

Only one new variety has been received this year, viz., 12 plants of North Star.

The number of plants of each variety planted in the fall of 1890 and alive now is as follows:—

Variety.	Planted Fall of 1890.	Alive Fall of 1891.
White—		
White Grape.....	31	31
White Dutch.....	18	18
Red—		
Red Cherry.....	10	10
Fay's Prolific.....	46	43
Versillaise.....	28	28
Moore's Ruby.....	29	28
Victoria.....	36	36
Red Dutch.....	18	18
North Star.....		12
	216	224

GOOSEBERRIES.

The Transparent was the only variety which was entirely free from mildew last summer.

The Triumph suffered slightly, the others severely, owing perhaps to the feeble condition of the bushes, on account of the frost heaving them out of the ground during the winter.

They were given a dressing of ashes in summer and late in the autumn mulched heavily with manure, and it is hoped they will winter without injury.

The nursery firm of McKenzie & McDonald, of Salem, Oregon, very kindly sent for test a dozen bushes of the Oregon Champion gooseberry, said to be exempt from mildew on this coast.

We have also to thank them for two fine peach trees of the Early Charlotte variety.

The collection of gooseberries now consists of 11 varieties and over 100 bushes.

NUT-BEARING AND OTHER USEFUL AND ORNAMENTAL TREES AND SHRUBS.

The nut-bearing trees, such as American, English and Japanese walnut, American, Japanese and Spanish chestnut, butternut, hard and soft shelled almond, pecan and filbert, have made satisfactory growth.

Also the forest trees of Eastern Canada, such as maple, ash, elm, beech, larch, pine and spruce, have done remarkably well, some of them having made, for the past season, a growth of over 7 feet, and give promise of being a gratifying success in this province.

The useful and ornamental trees and shrubs from France have, in most cases, made a vigorous growth. The mild spring-like weather of December and January caused some of the shrubs and small fruits to throw out buds, and the frost of February, combined with the cold and wet weather of March and April, had a damaging effect upon them; but when warm growing weather came they, with one or two exceptions, recovered and made a strong, healthy growth, and, as they are now well rooted, are, I hope, safely acclimated.

Within the last year there has been added to the collection, nearly 200 varieties of trees and shrubs, making now in all about 600 varieties.

Several hundreds of Manitoba ash and box elder have been raised from seed received from the Central Experimental Farm last spring.

This fall there was received from the Central Experimental Farm a supply of butternut, hickory and pig nut, hickory nuts, also beech and maple seed. These, it is expected, will make quite an addition to the stock of trees next year.

BULBS AND FLOWERS.

In addition to the bulbs noted in my report of 1890 as having been received and planted last fall, there were quite a number of bulbs and annuals planted and sown this last spring. These, together with the flowering shrubs, gave us a succession of beautiful flowers from March until the frost which came early in December.

LIVE STOCK.

There are four heavy draft and two general purpose horses on the farm.

The cattle consists of the cow and bull of the Shorthorn breed bought in 1889, and their increase. The heifer calf of 1890 has developed into a fine heifer, and this year the cow had a bull calf, which is now a very fine animal.

There has been no sickness of any kind among the stock this last year.

POULTRY.

The hens have done fairly well this year, but are in need of better accommodations than the temporary building put up for them in the fall of 1889.

After two years' experience with flocks of Houdans, Wyandottes, White Leghorns and White-faced Black Spanish, I have no hesitation in recommending the Wyandottes as by far the best of the four breeds tested for this climate, being good layers of medium-sized eggs, and the chicks are hardy and healthy, and they mature early. The young pullets begin to lay early and are good winter layers.

The fall exhibitions at Victoria, New Westminster and Ashcroft were attended and an exhibit of grains and roots made. A contribution of grain in the straw was also made to the exhibit made by British Columbia at the shows in Eastern Canada, and a small collection of fruit from the old orchard sent to be exhibited at some of the exhibitions in Manitoba and the North-West Territories.

Since my last report a very comfortable residence has been built for the superintendent, and the contract for a barn awarded. It is to be hoped it will be completed in time for next harvest, the old building at present in use being only large enough to shelter our stock, and furnishes no accommodation for grain. The want of such accommodation in this climate adds very considerably to the difficulty of harvesting and securing the crops.

I have the honour to be, Sir,

Your obedient servant,

THOS. A. SHARPE.

STATEMENT of Expenditure on the Dominion Experimental Farms, for the Year
ending 30th June, 1891.

CENTRAL EXPERIMENTAL FARM.

EXPENDITURES, 1st July, 1890, to 30th June, 1891.

	\$	cts.
Horses, harness, &c.	200	23
Cattle	538	97
Implements, tools, hardware	1,582	56
Draining and drain tiles	372	87
Grading and roadmaking	675	35
Cattle and horse feed	609	69
Blacksmithing and repairs	352	40
Seed grain, trees and shrubs	1,556	98
Stable manure, ashes and fertilizers	1,215	79
Exhibition expenses	380	81
Books, periodicals and newspapers	168	75
Printing and stationery	2,363	84
Telegrams and telephones	223	81
Travelling expenses	755	71
Chemical department	473	35
Poultry department	248	41
Seed testing and care of propagating houses	627	16
Seed grain distribution	2,177	92
Tree distribution	1,280	61
Salaries	11,350	23
Wages, farm work, including experimental work with grain and other farm crops	4,045	53
do care of stock	1,128	08
do horticultural department	1,841	13
do botanical department	365	22
do care of grounds, shrubbery and ornamental trees	753	63
do office help with correspondence, distributing reports and bulletins, and messengers services	1,284	56
Water account, including excavations, &c	230	82
Contingencies	543	42
	37,337	83

EXPERIMENTAL FARM, MARITIME PROVINCES.

EXPENDITURES, 1st July, 1890, to 30th June, 1891.

	\$	cts.
Harness	12	47
Cattle	2,621	95
Implements, tools, hardware	210	21
Draining and drain tiles	346	39
Grading, roadmaking, clearing	313	24
Cattle and horse feed	29	70
Blacksmithing and repairs	49	96
Seed grain, trees, shrubs, &c	101	24
Stable manure and fertilizers	370	60
Exhibition expenses	77	08
Travelling expenses	162	17
Salaries	1,200	00
Wages, farm work, including experimental work with farm crops, fruit trees, vines, &c	1,615	57
do care of stock	887	64
do office help	120	00
Contingencies	55	83
	8,174	05

EXPERIMENTAL FARM, MANITOBA.

EXPENDITURES, 1st July, 1890, to 30th June, 1891.

	\$	cts.
Harness	78	45
Implements, tools, hardware	704	70
Grading, roadmaking, &c	441	46
Horse and cattle feed	307	43
Blacksmithing and repairs	180	95
Seed grain, trees, shrubs, &c	254	87
Exhibition expenses	238	22
Books, periodicals and newspapers	43	10
Telegrams and telephone	127	89
Travelling expenses	78	60
Forestry	755	87
Salaries	1,200	00
Trees and plant distribution	44	58
Office assistance	53	25
Farm wages, including experimental work with farm crops, fruit trees, vines, &c	3,957	50
Contingencies	347	70
	8,814	57

EXPERIMENTAL FARM, NORTH-WEST TERRITORIES.

EXPENDITURES, 1st July, 1890, to 30th June, 1891.

	\$	cts.
Harness, &c	45	99
Cattle	3,374	37
Implements, tools, hardware	784	90
Cattle and horse feed	743	26
Blacksmithing and repairs	149	95
Seed grain, trees, shrubs, &c	273	32
Exhibition expenses	236	35
Books, periodicals and newspapers	31	10
Travelling expenses	100	60
Forestry	419	63
Salaries	1,200	00
Grading and roadmaking	21	00
Wages, farm work, including experimental work with farm crops, fruit trees, vines, &c	4,460	46
do care of stock	762	05
do office help	120	00
Contingencies	771	62
	13,494	60

EXPERIMENTAL FARM, BRITISH COLUMBIA.

EXPENDITURES, 1st July, 1890, to 30th June, 1891.

	\$	cts.
Harness, &c	20	50
Implements, tools, hardware	426	23
Clearing, grading, &c	2,345	96
Cattle and horse feed	903	84
Blacksmithing and repairs	51	25
Seed grain, trees, shrubs, &c	198	37
Books, periodicals and newspapers	28	90
Travelling expenses	126	25
Salaries	1,200	00
Wages, farm work, including experimental work with farm crops, fruit trees, vines, &c	2,025	34
do office help	100	00
Exhibition expenses	6	60
Contingencies, including house-rent	317	60
	7,750	84

SUMMARY.

TOTAL EXPENDITURE for Experimental Farms, 1890-91.

	\$	cts.
Maintenance account—		
Central Experimental Farm, Ottawa.....	37,337	83
Experimental Farm for Maritime Provinces, Nappan, N.S.....	8,174	05
do Manitoba, Brandon.....	8,814	57
do North-West Territories, Indian Head.....	13,494	60
do British Columbia, Agassiz.....	7,750	84
	75,571	89
Capital account—		
Erection of dairy building and piggery at Central Experimental Farm, Ottawa.....	3,967	02
Paid for land, Experimental Farm, Indian Head.....	7,680	00
Land account, Experimental Farm, Nappan, N.S., legal expenses and surveys.....	145	14
do do Agassiz, B.C.....	135	95
	11,928	11

In the sum charged to the Central Experimental Farm in the foregoing summary, many items are included which should be shared, to some extent, by each of the other farms. The amount paid for the salaries of the chief officers who devote a large part of their time to the branch farms and to the interests of farmers residing in the provinces where these farms are located, should be divided between the Central and other experimental farms. The following accounts should also be apportioned in a similar manner. Printing and stationery, office help for the distribution of bulletins and for conducting the correspondence with farmers all over the Dominion; the purchase of seed grain, trees and shrubs, the distribution of grain for test, also young forest trees and tree seeds. The cost of the special experiments in seed testing with grasses and grain, and the outlays connected with the botanical chemical and much of the horticultural work, should also be divided since these are all of a general nature in the benefits of which all the experimental farms share. If these accounts were divided and apportioned as suggested the sum charged against the Central Experimental Farm would be very much reduced.

INDEX.

	PAGE		PAGE
Agriculturist, report of the.....	63	Chemist, report of— <i>Concluded</i>	
Abortions, treatment of.....	65	Sorghum, analysis of.....	176
Calves, feeding and care of.....	80	Sugar beets, analyses of.....	171, 175
Cattle, cost of feeding.....	69	experiments with earthing.....	171
dehorning of.....	66	Tan bark, spent.....	163
experiments in feeding.....	67	Well waters, analyses of.....	179
general management of.....	65	general remarks on.....	182
mixed crops for feeding.....	105	<i>Zostera marina</i>	163
recent purchases of.....	64	Craig, John, Horticulturist, report of.....	116
tables of rations for.....	68	Director, report of the.....	5
treatment for lice on.....	66	Acknowledgments.....	62
Cream, experiments in churning of.....	96	Barley, experiments with.....	35
experiments in heating before churning	103	six-rowed.....	37
Dairy building, experimental.....	88	Baxter's.....	37
products, disposal of.....	104	Common Six-rowed.....	37
work, experimental.....	88	Greek.....	37
Ensilage, condition of different sorts of.....	112	Guaymalaye.....	37
Experiments in progress.....	71	Hulless Black.....	37
with milk, adding water before setting	91	Kangra Valley.....	37
in deep-setting pails.....	90	Lahoul.....	37
deep-setting <i>vs.</i> shallow pan.....	94	Mardan.....	37
set in wide and narrow cans.....	96	Monsury.....	37
immediate and delayed setting.....	89	Moulton.....	37
from cows at different stages of		Norway House.....	37
lactation.....	91, 94	Oderbruch.....	37
heating before churning.....	101	Odessa Six-rowed.....	37
Feeds, digestible substances in.....	70	Palampur.....	37
Fodder corn, cultivation of.....	114	Petschora.....	37
cutting of.....	115	Rennie's Improved.....	37
experiments with different sorts of.....	109	Seoraj.....	37
manner of planting.....	114	Sialkot.....	37
quantity of seed.....	114	Simla.....	37
soil for.....	114	Spiti Valley.....	37
Fodder crops cured.....	108	two-rowed.....	18, 35, 47
Mangels <i>vs.</i> sugar beets, feeding test of.....	79	Report from English brewers	
Meetings attended.....	63	on.....	48
Milking cows, composition of rations for.....	74, 79	Results of shipment of.....	49
feeding of.....	72	Beardless.....	35
summary of results of feeding of.....	79	Besthorns.....	35
Silos, construction of.....	115	Chevalier Selected.....	35, 37
directions for filling.....	115	Danish Chevalier.....	19, 35
Swine, experiments in fattening.....	83, 87	Danish Printice Chevalier.....	35
purchased.....	82	Duckbill.....	35, 36
Bedford, S. A., report on experimental farm		Dutch.....	35
at Brandon, Man.....	247	Early Minting.....	35, 36
Blair, W. M., report on experimental farm at		Golden Grains.....	35, 36
Nappan, N. S.....	235	Golden Melon.....	20, 35, 36
Chemist, report of.....	149	Goldthorpe.....	21, 35, 36
Acknowledgments.....	151	Italian.....	35
Ammoniacal gas liquor, fertilizing consti-		Kinver Chevalier (Webb's).....	21, 35, 36
tuents of.....	163	Large Two-rowed Naked.....	35
Apples not poisoned by spraying with		New Zealand.....	35
Paris green.....	189	Odessa Two-rowed.....	35
Babcock milk-tester, experiments with.....	176	Peacock.....	35
Bunt smut, experiments for prevention of.....	183	Peerless White.....	35
Condensed milk, analyses of.....	177	Phoenix Von Thaden.....	35
Copper solutions, effect of, on soil.....	186	Prize Prolific.....	18, 35, 36
Eel grass, as a fertilizer.....	163	Prolific.....	35
Fodders.....	165	Rice or Fan.....	35
Fodder corn, analyses of.....	166, 168	Sable.....	22, 35
Muds, mucks and peats.....	158	Sharpe's Improved Chevalier.....	35
analyses of.....	160	Swedish.....	35
Paris green, with soap as an insecticide.....	188	Thanet.....	35
Roots, analyses of.....	165, 168	Branch farms, annual inspection of.....	52, 56
Soil, alkali.....	152	Barns and stables at Central Farm.....	52
constituents of.....	153	Buildings.....	51
notes on analyses of.....	154	Carrots, experiments with.....	43
table of analyses of.....	157		

	PAGE
Director, report of— <i>Continued</i> .	
Carrots, yield of varieties of....	43
Cereals, improvements in.....	6
Correspondence.....	62
Exhibitions attended.....	61, 62
Experimental Farm, Agassiz, B.C., visit to.....	56
Brandon, Man.....	52, 53
Indian Head, N.W.T.....	53, 54
Nappan, N.S.....	52
Forestry.....	51
Forest tree seedlings, distribution of.....	51
seeds.....	51
Grain tests, results of.....	10, 29
Indian corn.....	27
Letter of transmissal.....	3
Mangels, experiments with.....	40
yield of varieties of.....	41
Melita, Man., visit to.....	53
Oats, experiments with.....	29
Abundance.....	34
American Beauty.....	30
American Triumph.....	30, 33
Badger Queen.....	30
Banner.....	17, 30, 31
Black Bourbonnaire.....	34
Black Brie.....	34
Black Coulommiers.....	34
Black Tartarian.....	30, 33
Black Tartarian Prolific (Webb's).....	30, 33
Bonanza.....	15, 30
California Prolific Black.....	34
Canadian Triumph.....	30, 33
Canadian White.....	31
Challenge White Canadian.....	30, 31
Cream Egyptian.....	30, 31
Early Archangel.....	30, 31
Early Blossom.....	30
Early Etampes.....	34
Early Gothland.....	34
Early Race Horse.....	30, 31
English Potato.....	30, 31
Flying Scotchman.....	14, 30, 31
Giant Cluster.....	34
Giant Swedish.....	32
Giant White Side.....	30
Georgia Early White.....	30, 31
Golden Beauty.....	32
Hazlett's Seizure.....	30, 32
Holstein Prolific.....	30, 32
Hungarian White.....	30, 32
Improved Ligowo.....	34
Joanette.....	34
Longfellow.....	30, 32
New Zealand.....	30
Oderbruch.....	30, 32
Poland White.....	32
Prize Cluster.....	10, 30, 32
Rennie's Prize White.....	30, 33
Rosedale.....	30, 33
Scottish Chief.....	34
Siberian.....	30
Victoria Prize.....	13, 30, 33
Waterloo.....	30
W-Idome.....	30, 33
White Dutch.....	30
White Egyptian.....	30
White English.....	30
White Giant.....	30
White Russian.....	30, 33
Wide Awake.....	30
Okanagan Valley, B.C., visit to.....	54, 56
Pears, experiments with.....	39
yield of varieties.....	39, 40
Multiplier.....	26

	PAGE
Director, report of— <i>Concluded</i> .	
Potatoes, experiments with.....	27, 44
Chicago Market.....	28
Early Ohio.....	28
Early Sunrise.....	28
list of varieties, with yield.....	44, 45
Prince Albert, N.W.T., visit to.....	54
Reports of officers, summary of.....	56, 61
Seed grain, distribution of.....	6, 10
Seed testing.....	46, 47
Sowing, early, medium and late, results of.....	49, 50
Spulmacheen Valley, B.C., visit to.....	54, 55
Sugar Beets, experiments with.....	41
yield of varieties of.....	42
Turnips, experiments with.....	40
Wheat, Fall, distribution of.....	28
Canadian, Velvet Chaff.....	28
Wheat, Spring, experiments with.....	38
Australian.....	38
Anglo-Canadian.....	38
Bearded Red.....	38
Calcutta Club.....	38
Calcutta Hard.....	38, 39
Connell, Red.....	38, 39
Connell, White.....	38, 39
Colorado.....	38
California White.....	38
Delhi White.....	38
Defiance (Johnston's).....	38, 39
Democrat, Spring.....	38
Fife Red.....	26, 38
Fife White.....	38, 39
Fife (Wellman's).....	38
Gehun.....	38
Goose.....	38
Great Western.....	38
Green Mountain.....	38
Galician Summer.....	38
Herison's Beardless.....	38
Hungarian Mountain.....	38
Hueston's.....	38
Judget.....	38, 39
Karachi.....	38
Kangra Valley.....	38
Ladoga.....	28, 38, 39
Lahoul.....	38
Palampur.....	38
Pringle's Champlain.....	38
Red Fern.....	38
Rio Grande.....	38, 39
Russian Hard Tag.....	38
Saxonka.....	38
Triumph (Campbell's).....	38, 39
White Chaff (Campbell's).....	24, 38, 39
White Russian.....	38
Entomologist and Botanist, report of the.....	190
Acknowledgments.....	191, 207, 208
<i>Agropyrum repens</i>	218
Apples not poisoned by spraying with.....	
Paris green.....	192
<i>Avena fatua</i>	219
Blister beetles.....	191
<i>Bromus scaberrimus</i>	219
<i>Bruchus pisi</i>	203
Buffalo tree-hopper.....	191
Burdock.....	217
Canada flea bane.....	218
Canada thistle.....	218
Chess.....	219
Chicory, wild.....	217
<i>Chrysanthemum leucanthemum</i>	218
Cigar case-bearer of apple.....	196
<i>Cichorium intybus</i>	217
Clover root-borer.....	200

	PAGE		PAGE
Entomologist and Botanist— <i>Concluded.</i>		Experimental Farm, Agassiz, B.C.— <i>Concluded.</i>	
<i>Culex arvensis</i>	218	Raspberries, list of.....	338
Common ragwort.....	216	Strawberries, list of.....	337
Copper carbonate, for grape rot.....	192	Sugar beets, experiments with.....	328
Couch grass.....	218	Tares, experiments with.....	325
Cutworms.....	190	Turnips, experiments with.....	325, 326
<i>Entomosecta adonidis</i>	202	Weather.....	311
<i>Epicauta maculata</i>	191	Wheat, spring, experiments with.....	315, 320
<i>Epicauta Pennsylvanica</i>	191	winter, experiments with.....	312
<i>Erigeron Canadensis</i>	218	Wheats, cross-bred, experiments with.....	313
Eye-spotted bud moth.....	195	Experimental Farm, Brandon, Man., report	
French weed.....	215	of the Superintendent.....	247
Gipsy moth.....	191	Apple trees, report on.....	269, 271
Grain plant louse.....	190	Avenue trees.....	279
Grass seeds, distribution of.....	208	Barley, experiments with.....	253, 254, 255
Grasses, foreign, experiments with.....	212	Buildings.....	282
native, experiments with.....	208	Cabbage, experiments with.....	279, 280
<i>Hylesinus trifolii</i>	200	Carrots, experiments with.....	268
<i>Lappa officinalis</i>	217	Cattle.....	263, 264
<i>Lepidium intermedium</i>	215	Cherry trees, report on.....	271
<i>Macrops porcellus</i>	201	Correspondence.....	283
Oat weevil.....	201	Crab-apple trees, report on.....	271
Orange daisy.....	217	Currants, report on.....	274
Oxeye daisy.....	218	Exhibitions attended.....	283
Pea weevil.....	203	Farmer's Institutes.....	283
remedies for.....	204	Feeding steers and swine, experiments with	264
Pear leaf blister.....	198	Flowers, report on.....	287
Pepper grass.....	215	Fodder corn, experiments with.....	257, 258
<i>Portulaca oleracea</i>	216	Fodder plants.....	258
Purslane.....	216	Forest trees and shrubs, report on.....	274, 278
Red turnip beetle.....	202	Fruit trees planted in 1891.....	274
<i>Rudbeckia hirta</i>	217	Gooseberries, report on.....	273
<i>Senecio Jacobae</i>	216	Grape vines, report on.....	275
Smut, loose.....	206	Grasses and clovers, experiments with.....	259, 262
bunt.....	206	Hedges for wind-breaks.....	278
remedies for.....	207	Horses.....	265
<i>Sonchus arvensis</i>	217	Mangels, experiments with.....	268
Sow thistle, perennial.....	217	Millets and Hungarian grass.....	262
Spraying with arsenites.....	192	Mixed grain for hay or green fodder.....	256
<i>Thlaspi arvense</i>	215	Oats, experiments with.....	252, 253, 254, 255
<i>Tmetocero ocellana</i>	195	Pear trees, report on.....	272
Tomato stalk borer.....	190	Pease, experiments with.....	280
<i>Typhlodromus pyri</i>	198	Plum trees, report on.....	272
Weeds of the Farm.....	213	Potatoes, experiments with.....	266, 267
Wild oats.....	219	Raspberries and blackberries, report on.....	273
Experimental Farm, Agassiz, B.C., report of		Renewing of old meadows.....	262
the Superintendent.....	311	Roads.....	282
Apples, list of.....	333	Seed distribution.....	257
Apricots, report on.....	336	Silos.....	263
Barley, experiments with.....	317, 321	Strawberries, report on.....	273
Blackberries, list of.....	338	Smudges, experiments with.....	256
Black currants, report on.....	338	Smut in wheat, remedies for.....	252
Bulbs and flowers.....	339	Tree distribution.....	279
Carrots, experiments with.....	327, 328	Turnips, experiments with.....	265, 266
Cherries, report on.....	334	Visitors to farm.....	283
Currants, red and white, Report on.....	338	Weather.....	247
Corn, experiments with.....	322, 325	Wheat, spring, experiments with.....	247, 251, 254, 255
Figs, report on.....	336	Experimental Farm, Indian Head, N.W.T.,	
Fruit trees on bench land.....	324	report of the Superintendent.....	284
Gooseberries, report on.....	331	Apple trees, report on.....	306
Grape vines, report on.....	336	Barley, experiments with.....	285, 292, 293
Land, area of under cultivation.....	311	Beans, report on.....	303
<i>Lathyrus sylvestris Wagneri</i>	325	Beets, report on.....	303
Live stock.....	339	Buckwheat, experiments with.....	298
Mangels, experiments with.....	325, 326	Cabbage, experiments with.....	303
Nectarines, report on.....	335, 336	Carrots, experiments with.....	300, 303
Nut-bearing trees, report on.....	339	Cauliflower, experiments with.....	303
Oats, experiments with.....	318, 321	Celery, experiments with.....	303
Peaches, report on.....	335	Cherry trees, report on.....	306
Pears, report on.....	334	Citrons, experiments with.....	304
Pease, experiments with.....	325	Cucumbers, experiments with.....	304
Persimmons, Japan.....	336	Currants, report on.....	306
Plums, report on.....	334	Exhibitions attended.....	309
Potatoes, experiments with.....	328, 332	Flax, report on.....	298
Poultry, report on.....	340	Flowers, report on.....	305
Quinces, report on.....	336	Fodder corn, report on.....	296, 297

	PAGE		PAGE
Experimental Farm, Indian Head— <i>Concluded</i> .		Horticulturist, report of the.....	116
Forest trees, report on.....	306	Acknowledgments.....	116, 117
Gooseberries, report on.....	306	Apple trees, effects of past winter on.....	120
Grape vines, report on.....	306	injured by mice, remedies for.....	118
Grasses and clovers.....	298	new varieties planted.....	119
Improvements.....	309	report on.....	117
Lettuce, experiments with.....	304	Russian, report on.....	120, 124
Mangels, experiments with.....	299, 300	standard varieties added to orchard	
Meteorological report.....	309	in 1891.....	119
Mixtures of grain for hay.....	284, 296	Beets, experiments with.....	138
Oats, experiments with.....	285, 294, 295	Blackberries, report on.....	137
Onions, experiments with.....	304	Cabbage, experiments with.....	138, 139
Parsnips, experiments with.....	304	Cauliflower, experiments with.....	139
Pear trees, report on.....	306	Celery.....	139, 140
Pease, experiments with.....	285, 295, 304	Cherry trees, report on.....	125
Potatoes, experiments with.....	301, 302	Currants, report on.....	138
Poultry.....	309	Forest trees and shrubs, distribution of.....	143
Radish, experiments with.....	304	Fungicides for apple scab, experiments	
Rape.....	285	with.....	144, 147
Raspberries, report on.....	306	Gooseberries, report on.....	138
Rhubarb, experiments with.....	305	Gooseberry mildew, remedies for.....	147
Rye, experiments with.....	298	Grapes, notes on varieties of.....	128, 136
Silo.....	308	table showing dates of ripening of.....	126
Shrubs, report on.....	307	Grape mildew, remedies for.....	147
Snudges, experiments with.....	286	Grape vines, report on.....	125
Smut in wheat, remedies for.....	290	Meetings attended.....	117
Spinach, experiments with.....	305	Pear trees, report on.....	124
Squash, experiments with.....	305	Pease, experiments with.....	140
Stallion.....	308	Peppers, experiments with.....	140, 141
Stock.....	308	Plum trees, report on.....	124
Strawberries.....	306	Raspberries, report on.....	137
Sugar beets, experiments with.....	301	Strawberries, report on.....	136
Summer fallows.....	307	Tomatoes, experiments with.....	141
Tomatoes.....	305	effect of fertilizers on.....	142
Turnips, experiments with.....	298, 299, 305	Tree seeds, distribution of.....	144
Weather.....	284	Mackay, A., Superintendent Experimental	
Wheat, spring, experiments with.....	285, 287, 290, 291	Farm, Indian Head, report of.....	284
winter, experiments with.....	291	Poultry Manager, Report of the.....	221
Experimental Farm, Nappan, N.S., report of		Acknowledgment.....	233
the Superintendent.....	230	Breeding pens made up.....	224
Barley, experiments with.....	238, 239	Breeds which have laid best in winter.....	223
Buildings.....	245	Buff cochins.....	226
Carrots, experiments with.....	244	Chickens, young, treatment of.....	226
Cattle.....	245	Dates of laying of young pullets.....	226
Corn, experiments with.....	242	Effect of rations on egg laying.....	222
Early and late seeding.....	239	Eggs, experiments with.....	229, 231
Exhibitions attended.....	246	set and chickens hatched.....	224
Fertilizers, tests of.....	240	weight of.....	231
Fruit trees, report on.....	245, 246	Fowls and eggs, shipment of.....	227
General crops.....	245	Hints to poultry keepers.....	234
Grasses, experiments with.....	242	Incubator, trial of.....	225
Hay lands.....	235	Meetings attended.....	232, 233
Mangels, experiments with.....	243	Plymouth Rocks.....	226
Manures.....	235	Poultry building, additions to.....	233
Meetings attended.....	246	diseases of.....	227, 229
Mixed grain for fodder.....	240, 241	show at Toronto.....	232
Oats, experiments with.....	236, 237, 240	Sitting hens, experiments with.....	225
Potatoes, experiments with.....	241	Visitors.....	233
Roads.....	245	Wild geese.....	232
Small fruits.....	246	Winter laying, commencement of.....	227
Trees and shrubs.....	245	Winter rations for fowls.....	221
Turnips, experiments with.....	244	Wyandottes.....	226
Water supply.....	245	Saunders, Wm., Director, report of.....	5
Weather.....	235	Sharpe, Thos. A., Superintendent Experimen-	
Wheat, spring, experiments with.....	235, 236, 239	tal Farm, Agassiz, B.C., report of.....	311
Gilbert, A. G., Poultry Manager, report of.....	221	Shutt, F. T., Chemist, report of.....	149

APPENDIX TO THE REPORT OF THE MINISTER OF AGRICULTURE

SECOND ANNUAL REPORT

OF THE

DAIRY COMMISSIONER

FOR THE

DOMINION OF CANADA

FOR

1891-92

PRINTED BY ORDER OF PARLIAMENT



OTTAWA :

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EXCELLENT MAJESTY

1892

APPENDIX

TO THE

REPORT OF THE MINISTER OF AGRICULTURE

BEING

REPORT OF THE DAIRY COMMISSIONER.

OTTAWA, 30th April, 1892.

The Honourable

The Minister of Agriculture.

SIR,—I have the honour to submit my second annual report as Dairy Commissioner for the Dominion of Canada.

During the year an increasing interest in dairying and its allied branches of farming has been awakened and maintained in all the provinces. Upon your recommendation the Government approved of the plan for the establishment of Experimental Dairy Stations in different parts of Canada, as outlined in the memorandum which I had the honour to submit on 5th January, 1891, and of which a copy appears in my annual report for 1890, at page 132. Parliament made adequate provision for the maintenance of that work in the appropriations for the year.

I was fortunate in securing the services of some of the most capable, energetic and trustworthy men who were available. Messrs. J. A. Ruddick, T. J. Dillon, John Robertson, J. B. McEwan, C. C. Macdonald, C. F. Whitley and J. W. Wheaton were engaged. Their reports upon the work which was entrusted to their care are included in this volume. Mr. J. W. Hart was engaged as an expert butter-maker, to give general assistance in experimental dairy work at the Central Experimental Farm and at the branch Experimental Dairy Stations.

SUMMARY OF THE WORK IN ONTARIO.

It was considered expedient to overtake some work of instruction at the cheese factories and creameries in the different provinces, before the dairy stations could be established with advantage. In pursuance of that plan, 194 cheese factories and creameries were visited by my assistants. The following circular which was issued, sets forth the objects of the preliminary system of instructing cheese and butter-makers at central factories.

OFFICE OF THE DAIRY COMMISSIONER,
DEPARTMENT OF AGRICULTURE,
OTTAWA, 1st May, 1891.

DEAR SIR,—The following are the dates, as far as they have been arranged, upon which the superintendents of experimental dairy work will visit cheese factories in Ontario:—

The object of these visits is to give instruction in the best methods of testing milk and manufacturing cheese of fancy quality, over as wide an area in as short a time as is practicable. This itinerant work has been undertaken as preliminary to the experimental investigations which will be carried on at several factories during the later parts of the manufacturing season.

Each of the superintendents will be furnished with a Babcock milk-tester, and other new and useful apparatus, for enabling cheese-makers to discover both the quality and condition of the milk which they handle.

All cheese-makers from the other factories in the several districts are invited to meet one of the superintendents at the place which is most convenient to them. A public meeting of the patrons and others may be called by the cheese-maker, or other representative, at these factories, for the afternoon of the dates which are marked *. At these meetings a demonstration of milk-testing will be given, and information on the best methods for the care and preparation of milk for cheese factories will be furnished.

Western Ontario.

Cheese Factories.	Dates.
Brownsville ..	May 14* 15
Ingersoll (Ireland's factory).....	" 18* 19
Newry (Morrison's factory).....	" 20 21*
Bluevale	" 22 23*
Goldstone	" 25 26*
Harriston	" 27*
Kenilworth	" 29*
Dundalk	June 1* 2
Cookstown	" 3*
Attercliffe station	" 4 5*
Norwich	" 9* 10

Thames (near Nilestown).....	May 18* 19
Avonbank (Muir's factory).....	" 20 21*
Geary's (near London)	" 22* 23
Appin	" 25 26*

Eastern Ontario.

Graham's (near Belleville).....	May 19*
Front line of Sidney	" 20*
Plainfield	" 22* 23
Shamrock (near Stirling).....	" 25* 26
Wellman's Corners (Whitton's factory).....	" 27* 28
Madoc	" 30*
Lakefield	June 2*
Brighton and Murray	" 4*

Cheese Factories.	Dates.	
Mallorytown	May	19*
Willow (near Brockville).....	"	21* 22
Old Fairfield (near Easton's Corners).....	"	23*
Perth	"	25* 26
Kemptville (Bush's factory)	"	27*
Van Camp (near W. Winchester)	"	28*
North Williamsburg	"	29* 30
Delta	June	2*
Newboro'	"	3*
Napanee	"	5* 6
Newburg	"	8 9*
Elginburg	"	10* 11
Marysville (Wolfe's Island)	"	12
Inverary	"	13* 15
Lecture at Sunbury evening of 15th.		
Pitt's Ferry.....	"	16* 17

All communications and reports should be addressed to the Dairy Commissioner, Central Experimental Farm, Ottawa.

This movement in Ontario was followed up by the commencement of experimental investigations into the process of making Cheddar cheese. The cheese factory owned by Mr. C. A. Matheson, Perth, Ont., was selected in Eastern Ontario; and Geary's factory, owned by John Geary, Esq., London, Ont., was chosen in Western Ontario.

Mr. J. A. Ruddick was in charge at Perth, and Mr. T. J. Dillon at London. Some particulars of the experiments which were undertaken, and of the information which was derived from them, will be found in the report of Mr. Ruddick. I have reserved the publication of the conclusions which were reached after examining the cheese upon several occasions, until the experiments are repeated and the investigations carried on further during the current year of 1892. Special importance is attached to our investigations into the quantities and qualities of cheese which may be obtained from milk containing different percentages of butterfat. It is hoped that we may be able to draw conclusions from the experience of our investigations for two years, which will not be misleading or incorrect. The report of Mr. Ruddick has been prepared under my direction, and contains all that is immediately valuable for dairymen to know of the nature and results of our experiments in that matter.

Shipments of the cheese from Perth and London were made to the British markets, where they excited most favourable attention from the trade and received high commendations in the press. The cheese which were made during July and August were consigned to Messrs. A. Clement & Son, of Glasgow (with branches at Manchester, London, Liverpool and Newcastle), and sold at an average price of 53s. per cwt. Part of them were sent to Manchester and London. A form similar to the one on the next page was sent to many of the leading retail provision dealers with the cheese, and some useful data is being collected from the replies which have been received from them.

REPORT ON CHEESE FROM THE EXPERIMENTAL DAIRY STATIONS OF CANADA.

(Made for Messrs. ANDREW CLEMENT & SON, GLASGOW, by:).

Date of examination189 .

Brands on cheese....., Date on cheese....., Lot.....

	Perfection.	Points Awarded.	Remarks.
Flavour.....	40		
Body or quality.....	25		
Texture.....	15		
Colour	15		
Appearance.. ..	5		
	100		

GENERAL NOTES.

The most noticeable faults and defects are:—

The good qualities which are worthy of particular mention are:—

Recommendations:—

(Signed)

WINTER CREAMERIES.

As soon as practicable an effort was made to follow out the original plan of Experimental Dairy Stations in reference to winter butter-making. At the close of the ordinary cheese-making season, arrangements were made with the proprietors and patrons of two cheese factories to alter their factories, fit them up for the manufacture of butter, and run them as creameries during the winter. Full particulars of the alterations which are necessary to equip cheese factories as creameries are given hereafter.

Mount Elgin Creamery.

At Mount Elgin, Ont., the joint stock company who own the factory agreed to put it into repair suitable for being occupied during the cold weather of winter. I agreed to put in the necessary butter-making apparatus and utensils, which the company have the privilege of purchasing at a price to be agreed upon. The business basis upon which the butter-making was to be carried on is set forth in my letter

to the president of the Mount Elgin Cheese Factory Company, of which the following is a copy:—

OFFICE OF DAIRY COMMISSIONER,
CENTRAL EXPERIMENTAL FARM,
OTTAWA, 26th November, 1891.

LEWIS A. PRICE, Esq.,
President Mount Elgin Cheese Factory Company,
Mount Elgin, Ont.

DEAR SIR,—In accordance with the proposition which I made at the public meeting of the patrons and others, held at Mount Elgin, for the purpose of discussing the desirability of running the cheese factory there as a creamery during the present winter, I desire to state:—

1. The making room and boiler room of the present cheese factory are to be altered and sheeted on the inside, in accordance with my memorandum to Mr. Pow, the cheese-maker there, at the expense of the company owning the premises. The whole amount for this purpose is not expected to exceed \$200 or \$250.

2. I agree to pay \$100 of rent for the use of the premises for the winter season of 1891-92; and further to provide the lumber for the ceiling of the making room.

3. I agree to put into the factory the necessary apparatus and equipment for the manufacture of butter.

4. Such apparatus and equipment may become the property of the company when the butter-making season is ended, by mutual agreement as to price, or I may remove the same.

5. The company shall keep the building fully insured, as usual, for their own benefit.

6. I agree to remove the butter-making apparatus and utensils, and to leave the building in at least as good a state for cheese-making as it was when I took possession of it for butter-making, at any time when notified to do so after the middle of April, 1892.

7. I agree to manufacture butter from the milk furnished at the factory by the patrons of the factory and others, at the rate of three cents per pound for all the butter which is manufactured. That three cents per pound is the manufacturing charge for all labour, furnishings, tubs, fuel, &c.

8. I further agree to ship the butter to some point or points in Great Britain, and have it sold there to the very best advantage, and to pay to the patrons who furnish milk the full net sum realized from such sales, after deducting the shipping expenses from Mount Elgin to the destination of the butter and the three cents per pound for the manufacturing charge.

9. After the end of every month the books will be made up, and an advance of fifteen cents per pound of butter will be made to the patrons. The division of proceeds from all sales of butter will be made to each patron in proportion to the quantity of butter which is obtained from the milk furnished by him, as determined by the Babcock milk-tester. Whatever balance over the fifteen cents per pound may remain at the close of the season will be distributed to the patrons upon the same basis.

10. The patrons will receive at the factory about 80 pounds of skim-milk and 10 pounds of buttermilk per 100 pounds of milk furnished. In case the buttermilk should be sold, it will be accounted for to the patrons, and the proceeds distributed to them in proportion to the quantity of milk furnished.

I may further state that in case arrangements be made with the company and the patrons for the running of the factory for another season—1892-93—I will agree to pay a rental of \$100 for the premises for that season.

I am, yours very truly,

JAS. W. ROBERTSON,

Dairy Commissioner.

In accordance with the agreement with the Mount Elgin Cheese Factory Company, the factory was altered and fitted up for the manufacture of butter. The expenses which were incurred by the company in fitting the cheese-making room and press-room for use during the winter, and which were estimated in my letter at \$200 to \$250, were greater than would be required at most cheese factories, where the making room is sheeted inside with matched lumber, or is plastered and is in a reasonably good state of repair.

Apparatus for a Creamery.

The apparatus required for the fitting up of a well appointed cheese factory for the manufacture of butter upon the centrifugal cream separator plan and the approximate cost are given underneath. The price placed opposite to many of the articles is the price which was charged to the Government. A private individual or company, in some instances, could not purchase them quite as cheap; but in the aggregate the cost of making the alteration and putting in the machinery, apparatus and utensils which are required, need not exceed the amount which has been mentioned.

1 Centrifugal cream separator (capacity 3,000 lb. of milk per hour).....	\$330 00
1 Milk-receiving and heating vat (300 gallons) ..	55 00
2 Cream vats (200 gallons each)	80 00
1 Revolving churn (250 gallon size)	41 00
1 Power butter-worker	55 00
1 Hand butter-worker	9 00
1 Pair butter scales	8 50
1 Large dipper, 1 small dipper, 1 strainer dipper, etc.....	5 00
2 Butter spades, 2 butter ladles, 1 butter packer, etc.....	2 00
1 Butter printer (lettered).....	5 00
1 Butter trier	4 00
1 Strainer for cream, 1 hair sieve	3 00
1 Four-gallon cream-fermenting can.	6 00
1 Buttermilk tank	6 00
1 Elevated skim-milk tank, with pipe and valve for con- ducting milk to waggons.....	15 00
1 Stove.....	10 00
Stencil-plates	3 00
Carpenter-work, shafting, pulleys, belting, hangers, pipes, fittings, freight and teaming	153 00
	<u>\$790 50</u>

In some cheese factories the articles which are mentioned below do not form part of the equipment. They are really essential for carrying on the business in the best way, and should not be counted as a charge upon the cost of altering a cheese factory and fitting it for butter-making, although they are necessary in the butter factory:

1 Babcock milk tester	\$22 00
1 Ejector for scalding and elevating the skim-milk.....	9 00

The patrons delivered the milk at the creamery and carried home the skim-milk in the same milk cans. After the first few days, the necessary delay to obtain the skim-milk did not exceed 15 minutes.

The creamery commenced operations on 4th December, 1891, and cheese-making was resumed after 9th April, 1892.

Fifty-two patrons supplied milk.

The total quantity of milk received was 245,142 lb.

The total quantity of butter manufactured was 11,062 lb.

The average percentage of fat contained in the milk was 4.07 per cent.

The milk from different patrons varied from 6 per cent to 2·4 per cent of fat.

On the same day the widest difference between the milk from two patrons was,—one lot 5·2 per cent and another lot 2·6 per cent of fat.

The average number of pounds of milk required to yield a pound of butter in each of the months was as follows:—

December—21.38 lb. of milk per lb. of butter.

January —20·68 “ “ “

February — 22.68 “ “ “

March and April—25.41 “ “

Every pound of butter-fat in the milk yielded 1.1 lb. of marketable butter.

Shipments of the butter were made to Liverpool, Montreal and Vancouver, B.C. The first shipment to Liverpool was consigned to Messrs. A. Clement & Son, of Glasgow, and was distributed to different cities in Great Britain. Full account sales have not been received, but an interim report mentioned that the butter from Mount Elgin creamery was selling for 123s. per cwt. (112 lb.)

From a later shipment to Liverpool through Messrs. J. L. Grant & Co., of Ingersoll, to be sold by Messrs. Grant & Boyd, of Liverpool, account sales have been received. The butter sold for 124s. per cwt. That was equal to 26.57 cents per pound with the rate of exchange at \$4.80 per £.

The expenses incurred were equal to the following rates per pound of butter from the factory:—

Two months' discount.....	·22	per lb. of butter.
Freight charges and dues.....	·67	“ “
Receiving, weighing, railway carriage, &c.	·20	“ “
Commission and guarantee, 4 per cent.....	1·05	“ “
Loss in weight.....	·35	“ “

2·49

The total expense (including transportation, selling commission, discount and shrinkage, between Ingersoll and the ultimate selling points) was equal to 2.49 cents per lb. of butter.

The shipment which was sent to Vancouver, B.C., sold for 30 cents per lb. there. The freight charges, selling commission, &c., cost 6 cents per lb., which left 24 cents per lb. at Ingersoll station.

The following comments on the quality and condition of the butter from Mount Elgin creamery have been received :—

From Messrs. A. Clement & Son, Glasgow:—"I am glad to say your first shipment of butter, marked E.X.I., gives good satisfaction, notwithstanding we have to contend against the name 'Canadian,' which has to fight against the prejudice of shopkeepers that are only used with stale, stored goods. We have sent samples to Leeds, Bristol, Leith, Dundee, &c., besides our own places. I enclose you note received from Manchester."

From Messrs. H. Hargrave & Son, Manchester:—"With reference to your inquiry about our opinion of the Canadian butters, we are very pleased with the quality, and consider them the finest we have ever seen from Canada. There is a good opening in this district for a butter of this class, if shipped perfectly fresh, and if made carefully, so that the quality of each package is regular. We do not think this butter will compete against Danish, owing to the longer time taken in transit, but we think it will make a good second, and we consider it very much superior to Australian or New Zealand butters."

From the *Northern Counties Grocers' Review*, 8th March, 1892:—"Canadian Produce.—Some time ago we commented on the fact that the experimental dairy stations belonging to the Dominion Government of Canada had been very successful in their efforts to improve the quality of the cheese sent to this market, and we are very glad to find, if we may judge from a first consignment of winter-made creamery butter from the same source, which is being shown by the agents here, Messrs. A. Clement & Son, 4 Greenwood street, Manchester, that they are likely to be quite as successful in their efforts in bringing to perfection the system of winter dairying, as practised in Denmark and Sweden. The quality of the butter received is distinctly fine, one of the lots especially being the finest Canadian butter ever seen on this market. Several leading experts have expressed themselves as being both surprised and pleased with it. The only fault which can be found with it is in the colour, which is rather high, but this probably could be easily remedied. If bulk can be sent equal to the parcel, it would be welcomed by the trade generally."

From *The North British Grocer and Provision Trade Journal*, 2nd April, 1892:—"The Government of Canada resolved about a year ago to establish experimental dairy stations in the different provinces of the Dominion, the chief object being to effect an improvement on the quality of Canadian butter. For this purpose the premises of two cheese factories, one at Woodstock, the other at Mount Elgin, Ontario, were altered and specially fitted, and the farmers of the district have been giving their hearty support to the project. The chief part of the produce is designed for export, and the Canadian Government hope within a short time to see the trade enlarged until it equals that of the growing cheese industry. The first shipment of the winter-made butter, amounting to 10,000 lb., has been received by Messrs. Clement & Son, of this city. The butter, which is light salted, is of good body and fine flavour, and is tidily, neatly and cleanly packed in handy little tubs, containing about a stone weight and upwards."

From *The Glasgow Evening Citizen*:—"The Canadian Butter Industry.—Canada, it seems, is about to enter our butter market as a serious rival to Denmark, and it may even be to Ireland. Twelve months ago the Government of the Dominion resolved, by means of its agricultural department, to establish a series of experimental dairy stations in the different provinces of both Upper and Lower Canada, the main object of these being to effect an improvement in the quality of Canadian butter. The first shipment of 10,000 lb. to this country of butter made in these stations was recently consigned to Messrs. Clement & Son, of Glasgow. So bright do the prospects of the new industry look that the directors of the Agricultural Department of the Dominion Government expect that, say in three years' time, the butter export will amount in value to something like a million dollars."

From *The Bailie*, Glasgow, 13th April, 1892:—"Messrs. Clement & Son, of this city, who have also branches in London, Manchester and Newcastle, have just received a first shipment of 10,000 lb. of winter-made creamery butter from Canada. Up till recently butter-making was regarded as an outside accomplishment by the Canadian farmer. He took to it at odd moments, and if the truth must

be told, the butter bore distinct evidence to the hap-hazard system in which it had been manufactured. Twelve months ago, however, the Government at Ottawa resolved that the industry should be put on a different and better footing. Experimental dairy stations were established in the several provinces, so as to assist in the development of winter dairying; co-operative creameries were started, and other steps were taken so that Canadian butter might by and by take a position in the British and other markets similar to that occupied by Canadian cheese. Hearty support has been given to the movement by the farmers in the Dominion, and now, at the end of the first season, all concerned are thoroughly satisfied with the proceeds and prospects of the movement. On this side of the Atlantic the butter will be warmly welcomed. Not only is it excellent in quality, but its price is such as to recommend it to every householder over the length and breadth of the land."

Later, from Messrs. A. Clement & Son, Glasgow:—"I hope you will not send any more before the beginning of December. We distributed the first shipment as widely as possible, to get the opinion of different districts, and from some of them we have not got returns yet. In England, especially, it is very difficult to introduce anything new, but I am quite satisfied that if the butter was made with a fair proportion of new-calved cows' milk, and made in such quantities that it could be shipped every week, that it would bring an equal price to Danish, and find a ready market.

"The butter trade is an increasing one, and notwithstanding a substitute in margarine, there is an enormous demand for fresh-made butter, that will always command a good price from the 1st of December to the 1st of April. Ireland supplies us well with summer stock. Stored butter now will not sell at all; hence the trade have ceased to hold summer make, and buy fresh-made winter stock."

The main and practically the only defect which was discernible in the quality of the butter was the absence of a full rosy flavour, which is called by the trade "bouquet of fresh-made butter." At the Central Experimental Farm experiments were conducted during the autumn and early winter with three groups of cows at different stages of lactation. The butter which was made from the milk of cows which had been calved longer than six months was deficient in rosy rich flavour. It was decidedly inferior to the butter made from the milk of cows of the same breeds fed upon the same quality of feed, but which had been milking only from one to three months. The addition of the milk of even one fresh-calved cow to the milk from a number of others which are at advanced stages of their milking period, has the effect of improving the flavour of the butter made from the mixed milk. At the Mount Elgin creamery the milk which was furnished from December until after 18th February was all from cows which had been milking for periods of four, six to eleven months. The addition of the milk from a dozen fresh-calved cows to the whole quantity of milk received daily would have improved the flavour very much and added to the value of the butter in the English market. It will be easy to overcome the defect in the flavour of the butter next season, in the way which has been suggested.

A number of cheese-makers availed themselves of the opportunity of visiting these creameries and learning the art of butter-making to some extent. Every one who cared to go was welcome to learn all he could of the art of making butter, in order to fit himself for carrying on the business in his cheese factory when the alteration comes there also.

Woodstock Creamery.

At Woodstock, Ont., the premises of the East and West Oxford Cheese and Butter Manufacturing Company were secured upon terms somewhat similar to those

which have been detailed as the agreement with the proprietors and patrons of the Mount Elgin cheese factory. At Woodstock the patrons of the factory kept a smaller number of cows each than the farmers in the other case. For that reason, and in order to obtain the information which a comparison between the centrifugal separator plan and the cream-gathering plan would afford, it was decided to collect the cream only at this factory. The company agreed to put the making-room into such repair that it could be occupied during the winter. The main expenses were the sheeting around the outside of the building on the posts between the sills and the ground, and the putting on of double windows and storm doors. It was estimated that the outlay required would be between \$100 and \$125. I agreed to pay \$100 for rent of the premises, to put in the necessary apparatus and equipment for the manufacture of butter, and to collect the cream and manufacture the butter at a charge of 4 cents per lb. of butter. The factory making-room was sufficiently large to permit all the butter-making machinery and utensils to be placed in one end of it. As in the case of the factory upon the centrifugal separator plan, a list of the apparatus and utensils required to fit up a cheese factory for the manufacture of butter upon the cream-gathering plan is given herewith. The price which is placed opposite to most of the articles is the price which was charged to the Government. A private concern could not purchase them at quite as low prices, but, on the whole, the cost of making the alterations and putting in all requisite apparatus and fittings need not exceed the amount which is stated.

2 Cream vats (200 gallons each).....	\$ 80 00
1 Revolving churn (250 gallon size).....	41 00
1 Power butter-worker.....	55 00
1 Hand do	9 00
1 Pair butter scales.....	8 50
6 Thirty-gallon refrigerator cream-collecting cans	57 00
1 Four-gallon cream-fermenting can.	6 00
3 Cream gatherer's measuring pails.....	6 00
1 Large dipper, 1 small dipper, 1 strainer dipper, &c....	5 00
2 Butter spades, 2 butter ladles, 1 butter packer, &c.....	2 00
1 Butter printer (lettered)	5 00
1 Butter trier	4 00
1 Strainer for cream, 1 hair sieve.....	3 00
1 Oil-test churn with cream collectors' cases.....	43 00
1 Butter-milk tank	6 00
1 Stove.....	10 00
Stencil plates.....	3 00
Carpenter-work, shafting, pulleys, belting, hangers, pipes, fittings, freight and teaming	175 00
	<u>\$518 50</u>

The milk was set by the farmers in deep-setting pails in tanks of cold water. They were at liberty to skim the cream from the milk at any time. The cream gatherer called at every patron's place every second day. The full quantity of cream for the creamery was measured in a cylindrical pail 12 inches in diameter.

The number of inches in depth was credited to each patron. After the cream was thoroughly mixed a sample was taken in a glass tube for the oil-test churn, which revealed the quality of the cream or the number of ounces of butter which it would yield per inch. The cream was paid for according to the quantity of butter which it yielded.

The following paragraphs taken from Dairy Bulletin No. 3 explain the nature and use of the oil-test churn:—

Qualities of Cream.

Since managers of creameries have adopted the plan of paying for cream according to its butter-making qualities, some dissatisfaction has been caused among the patrons by the differences which comparisons have made evident. In most cases the trouble arises from an erroneous idea that the richest cream is the best for butter-making and the most profitable to the patron. It is not the patron who supplies the cream which yields the greatest number of ounces of butter per inch who always obtains the largest returns from the milk which has been set. Milk which has been set in deep pails at a high temperature, and has not been cooled below 60° Fahr., will yield a cream very rich in butter-making quality; but there will be a smaller quantity of cream obtained from the milk and a less quantity of butter than where the milk is cooled as low as 40° Fahr. The longer the time cream stands on milk after practically all of it has come to the top, the less space it will occupy. As it shrinks in bulk it becomes richer per inch, but the total quantity of cream from the milk will not yield any more butter than it would have made before it became compact by long standing. (A creamery inch of cream is equal to 113 cubic inches, or to 1 inch in depth of a cylindrical vessel 12 inches in diameter.) When the milk is skimmed every 12 hours the cream will not yield as many ounces of butter per inch as when it has been set for 24 hours or longer.

Skimming should not be delayed longer than 24 hours after the milk is set. Cream should be removed from the milk before it is sour. Its value to a creamery for butter-making depends not alone upon its richness in butter-fat; purity, sweetness and fine flavour are qualities it should possess.

The Oil-Test Churn.

The oil-test churn is used to determine the quantity of churnable fat in each supply of every patron's cream. The requirements for its successful use are:—

(a). Careful sampling of the cream, which should be poured at least twice from one vessel to another before the sample is taken for the test tubes;

(b). Accurate measuring;

(c). Souring of the cream;—(to ensure a uniform degree of acidity in all the samples of cream, they should be warmed to 70° Fahr. and kept at that temperature for 24 hours before they are churned);

(d). Heating of the samples to a temperature of 135° Fahr. after they have been churned;

(e). Subsequent cooling to 65° or 70° Fahr.;

(f). Churning, reheating and cooling.

In a case where the butter-oil of any sample does not separate to show a clear line of demarcation between itself and the other constituents of the cream, the cooling to 70°, the churning and reheating should be repeated.

The first butter was made in the creamery on 21st November, 1891.

Further particulars of its fitting up and operation will be found in the report of Mr. J. A. Ruddick.

During the month of March, 1892, a number of the patrons expressed a desire that a centrifugal separator should be put into the creamery. It was fitted up and put into operation on 26th March. From then until 23rd April, thirty-six of the patrons

supplied milk, instead of cream. The additional apparatus required were: 1 centrifugal cream separator, 1 Babcock milk-tester: 1 ejector for elevating skim-milk, 1 skim-milk tank, and shafting, pulleys, hangers and belting.

The following is a summary of the business:—

The creamery commenced operations on 21st November, 1891, and cheese-making was resumed after 23rd April, 1892.

Forty patrons supplied cream.

Eighteen of the same patrons, and eighteen others, supplied milk after 26th March.

The quantity of butter manufactured from gathered cream was.....	9,111 lb.
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The quantity of butter manufactured from milk received was.....	2,524 do
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Total	11,635 do
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The quantity of milk received was 68,221 lb.

The average percentage of fat contained in the milk was 3.34.

The milk from different patrons varied from 2.93 per cent to 4 per cent of fat.

The average number of pounds of milk required to yield a pound of butter from 26th March to 23rd April was 27.2 lb. Every pound of butter-fat in the milk yielded 1.1 lb. of marketable butter.

Shipments of butter were made to Liverpool and Toronto. Full account sales from the shipments to Liverpool have not yet been received. Part of the lot of the first shipment, which was made wholly from gathered cream, sold for 108s. per cwt. or 15s. per cwt. lower than the butter from the centrifugal separator creamery at Mount Elgin. This difference in price was largely owing to the fact that the gathered cream was raised under unfavourable conditions at many of the farms; on the other hand, the cream from the centrifugal separator was under the control and care of a skilled butter-maker from the commencement. Some particulars on the relative quantities of butter which may be obtained from the two methods may be found at pages 57-58. The butter which was sent to Toronto was put up in 1-lb. prints. It fetched 25 to 23 cents per lb. at Woodstock station. The following brief report of the closing meeting of the patrons is taken from one of the newspapers:—

“The Dominion Experimental Creamery closed its operations on Saturday. A meeting of the patrons was held at the factory last night, President West in the chair. Mr. J. A. Ruddick, manager of the creamery, gave a brief summary of the work done. The total number of pounds of butter made was 11,643, during a season of five months, a much greater quantity than was expected when the creamery was started. The net figures as to the result and profit obtained are not yet to hand, but it is expected that the patrons will receive over 20 cents per pound clear of all expenses. The Woodstock creamery was started on the cream gathering plan, but by the 26th of March the business had increased so much that it was found necessary to introduce a centrifugal cream separator. The result showed that from 15 to 25 per cent more butter could be made by the use of the separator than by the old cream-raising method. The milk was tested by the Babcock tester, and each patron credited with the number of pounds of butter-fat delivered daily. The justice of this method will be easily recognized by the dairymen when it is known that the per cent of butter-fat in the different milks varied from 2.93 to 4 per cent. A number of the patrons gave expression of opinion as to the result of the Government experiment here.

Mr. Blow, who has sent milk to Toronto on former winters, said that he considered that he had done much better this year by patronizing the creamery, provided they realize about 20 cents per pound for the butter, as is expected. He was highly satisfied with the results.

Mr. E. Rinch considered he had made double as much out of his cows as he would have done if he had made his own butter.

Mr. John Kirkpatrick said it paid him better than selling milk in Woodstock at \$1.

Mr. M. S. Schell, who feeds a large number of cattle, said that he believed that in order to make money out of a farm one had to do it by feeding stock to produce either beef or milk, and with butter at 20 cents per pound he considered the production of milk would pay better.

Mr. Werry declared that if there was no more butter made in the winter at this factory he would have to sell his cows, as his wife says she will make no more.

The speakers all laid great stress on the value of the skimmed milk for feeding purposes. It was returned to them sweet. On motion it was unanimously decided that the factory be operated as a creamery again next winter.

The following resolution was also carried unanimously:—Moved by Mr. Jos. Blow, seconded by Mr. J. W. Chambers, "That we, the patrons of the East and West Oxford Experimental Creamery, established by Prof. Robertson, Dairy Commissioner of the Department of Agriculture, Ottawa, and under the immediate direction of Mr. J. A. Ruddick, desire to give expression to our hearty appreciation of the efforts so put forth to introduce and foster winter butter-making under the creamery system; and further, that we are satisfied from our experience of the past winter that by the introduction of winter butter-making a much larger return from our cows will be realized than has heretofore been obtained."

SUMMARY OF REPORTS OF MY ASSISTANTS.

The reports of the superintendents of experimental dairy work contain much reliable information and advice for the guidance of cheese-makers, butter-makers and dairymen. Besides containing a record of the work which was taken up by them, they are full of helpful suggestions. A brief summary of their contents may be given as follows:—

Mr. T. J. Dillon's Report (Ontario).

1. In some experimental work at Salford factory, in the cooking of curd to temperatures between 84° and 87°, the body of the cheese was found defective from being too soft. Mr. Dillon thinks that fault might have been remedied by the addition of more salt to the curd.

2. He visited 40 cheese factories, and in the testing of milk found the quality of the milk furnished by the different patrons to vary from 5 per cent to 1·6 per cent of fat. He addressed 12 meetings in connection with these visits to cheese factories. In his reports on the condition of the factories he states that he found fifteen factories clean and tidy, eighteen of them in a passable condition, and seven of them very dirty. He points out that the example of cheese-makers is often copied by the patrons, and advises cheese-makers to make the surroundings of the factory buildings, whey tanks, &c., models of cleanliness and neatness. He cites a case where he helped to scrub out a whey tank which had not been cleaned before for seven years. He mentions instances where the cheese hoops had not been cleaned for many years.

3. He points out that the farmers should exercise more care in the keeping of milk perfectly clean, as that condition is essential to the making of fine wholesome cheese and butter.

4. The defects in the cheese which he examined were mainly the presence of too much lactic acid, dryness of body, ragged holes throughout the texture, and a general want of finish from careless or inferior workmanship.

5. In connection with the running of the experimental dairy station at Mount Elgin, he points out that the common opinion among the patrons was, that the profit derived from the feeding of the skim-milk has been sufficient to pay for the extra feed consumed by the cows to keep them milking during the winter. The cows are reported to be in better condition than if fed sparingly and allowed to go dry.

6. As an illustration of the value of the services which have been rendered, two instances are cited of factories where twenty-two cheese (weighing an average of sixty-six pounds each) were being made per day, and where one full cheese extra was made per day at each factory from the same quantity of milk after his visit. A great deal of advantage accrued to the makers of cheese also from being able to get through the day's work earlier by adopting his suggestions.

Mr. J. A. Ruddick's Report (Ontario).

1. Mr. Ruddick visited 22 cheese factories and held 16 meetings. As many as 10 cheese-makers on one day came to visit the factories at which he gave instructions in the course of his travels. During the travelling which was undertaken, before the work of experimental investigation in cheese-making was commenced, he met 69 cheese-makers, 4 dairy inspectors, 8 cheese buyers, 23 factory managers and about 500 patrons of cheese factories. He noticed a marked improvement in the cheese and cheese-makers.

2. He urges more attention to cleanliness of the buildings and utensils, and advocates the use of water that is hot and not merely lukewarm. He found a number of thermometers in use which were as much as 4 or 5 degrees in error.

3. He classifies the cheese-makers into three groups: (a) those who are always trying to improve; (b) those who are anxious to get cheese to pass, regardless of their quality; and (c) those who are utterly shiftless and lazy. He does not entertain much hope for the latter class; (neither do I for them, either here or hereafter).

4. He points out mistakes which he observed in cheese-making:—(a) he found milk ripened too much; (b) he found in many cases that the salting and the putting of the curd to press was done before the curd was ripe enough for those treatments; (c) he found cheese-makers using too small a quantity of rennet extract at all seasons of the year.

5. He tested 640 samples of milk with the Babcock milk-tester. The richest sample he found was one containing 4.4 per cent of fat, and the lowest one containing 2.6 per cent of fat. The average quality of the milk was 3.44 per cent of fat. Seven samples tested over 4 per cent of fat and 14 samples less than 3 per cent of fat. A statement of some of the experimental work in cheese-making, which was undertaken at the Perth factory, is also given.

6. Reference is made to what was done at the working dairies at the Sherbrooke and Montreal exhibitions.

7. A brief report is made upon the working of the winter creamery at Woodstock until the 31st of December. He mentions that in no case was the cream frozen on its way to the creamery. The patrons were hardly prepared to engage extensively in winter dairying, but they are satisfied with the results, and speak with confidence of their intention to support and run the creamery during next winter.

SUMMARY OF THE WORK IN QUEBEC.

Besides the work which was undertaken in this province by Mr. J. C. Chapais, a concise and interesting summary of which is given in his annual report, partial superintendence and assistance were given at the Dominion Dairy Show, held at Sherbrooke, Quebec, on 1st to 5th September, 1891. At this exhibition there were gathered in competition cheese from Quebec, Ontario, British Columbia and Nova Scotia. I was assisted in the judging of the cheese by Andrew Clement, Esq., Glasgow, Scotland, one of the largest and most experienced importers of cheese into the Scottish markets, and D. M. Macpherson, Esq., of Lancaster, Ont. The quality of the cheese was generally excellent. In my opinion, which was concurred in by the two gentlemen whom I have named, the quality of the cheese on the whole was the finest ever examined at any exhibition held in Canada. The display of butter included packages from British Columbia. The creamery butter from the Province of Quebec was exceptionally fine. The exhibition brought to light in a more prominent way than could otherwise be done the great advancement made in dairy practices and in the improvement of dairy products in Quebec during recent years. The friendly rivalry which exists between the sister provinces for holding the first place in the Dominion in the reputation of their products will tend to the advantage of dairymen in them all.

A working dairy formed part of the dairy outfit at Sherbrooke. Three of my assistants, Messrs. Ruddick, Macdonald and Hart, performed the work and gave illustrations and information to all who visited that department of the exhibition. We also conducted a working dairy at the exhibition in Montreal. While these working dairies at exhibitions are popular and interesting features, which help to attract the public and increase the gate receipts of the exhibition companies, I do not consider that any further expense connected with them should be borne by our department. In so far as they direct public attention to the best methods of conducting dairy operations, they have an educational value. However, at exhibitions in most instances, they are visited mainly by a class of people whose interest in dairy work is superficial and casual. Viewed in the sense that they are simply an attractive department of an exhibition, it seems to me that hereafter the exhibition promoters or companies should provide these, as they do other special attractions, from their own funds. At Sherbrooke we conducted tests in the competitions between the cattle of the breeds entered in the different classes. We did that also at Toronto, in connection with the prize of silver plate offered by *The Farmer's Advocate*, of London, Ont. This matter also in future years should, I think, be left to the exhibition managers, exhibitors and others who may offer prizes.

Experimental work in cheese-making was carried on at Dunham, Que. Shipments of these cheese were made to Great Britain. With regular and larger shipments of products from our Experimental Dairy Stations in coming years, it is to be

expected that a still wider interest will be evoked from the public in Great Britain, not only in the excellent quality of our food products, but in the opportunities and facilities which this country offers for settlement by English farmers who are able and willing to carry on mixed and dairy farming.

Report of Mr. J. C. Chapais, Assistant Dairy Commissioner (Quebec).

1. Mr. Chapais gives statistical particulars of the meetings which he addressed. He made 54 visits in 34 counties at which he (1) gave lectures on agriculture and dairying and (2) helped to organize syndicates of cheese factories and creameries for the engagement of competent inspectors and instructors.

In company with Mr. C. C. Macdonald (one of my expert cheese and butter-makers) he visited 33 localities in 28 counties. At these places practical demonstrations in the arts of making cheese and butter were given, and lectures were delivered to the patrons of the factories on the care and feeding of dairy stock, the handling and preparation of milk for delivery to factories and the benefits from co-operative dairying. At the meetings which were held in connection with these visits 6,000 farmers, 142 cheese-makers, 26 butter-makers and 8 inspectors of syndicates received instructions.

2. Mr. Chapais gives a synopsis of two lectures which he delivered in many of the localities. The first lecture is a clear exposition of the relation of the dairy industry to improvement in agriculture in Quebec. The second lecture was given to promote the formation of syndicates of cheese factories and creameries. Both lectures are full of such instruction and advice as must be beneficial to the dairy interests of Quebec.

3. A report of the methods of procedure at the cheese factories and creameries which were visited is given. The faults in the buildings of the factories, and their surroundings, are pointed out, and remedies are suggested. The unsuitable practices in the handling of milk and the methods of manufacturing its products are mentioned, and the treatments whereby the best quality of products may be obtained are indicated.

4. Comments are offered on the Dominion dairy show at Sherbrooke, Que.; and the rapid and gratifying progress which is being made towards improving the quality of the dairy products of Quebec is stated.

Mr. C. C. Macdonald's Report (Quebec).

1. Mr. Macdonald describes his work of travelling instruction by which he visited counties, mostly in the French-speaking districts, giving instruction in cheese-making, butter-making and the use of the Babcock milk-tester. He gave instructions to 152 cheese-makers and 14 butter-makers. He was well received everywhere, and travelled nearly 4,000 miles.

2. He points out that many of the cheese factories are imperfectly constructed, rather poorly equipped and without sufficient drainage. The practice of engaging "cheap" cheese-makers is deplored, as inexperienced men offer to work for low wages, and bring loss and trouble to the factory owners and patrons. Mention is made of the fact that where he found women managing factories, they were kept in a tidy and clean state.

3. He points out that inferior rennet of bad flavour and odour is sometimes used with necessarily injurious results to the quality of the cheese. Cheese boxes are often badly nailed, and finished very roughly. A cheese box should have at least 45 nails, to enable it to successfully stand the handling to which it will be submitted.

4. He noticed considerable improvement in cheese-making since 1890. Forty-four meetings were attended, and no meetings were held while hay-making was in progress.

5. He points out that in marketing cheese, many are shipped too green, entailing a loss upon both factorymen and buyers.

6. He reports the butter factories to be better built and better kept, as a rule, than the cheese factories.

7. He tested 1,226 samples of milk, and found the quality to range from 3.5 per cent to 8 per cent of butter-fat. He found one fine cow at St. Jérôme, Lake St. John district, giving 15 pounds per milking, which tested 8 per cent of fat.

8. He points out that the cows are often badly cared for during the winter, which prevents them from milking as well as they otherwise would during the summer. Valuable milch cows are obtained in a cross between the Quebec Jerseys and the Ayrshires. The Lake St. John region is particularly mentioned for its fine nutritious grasses and pure water in streams and lakes. The crops of wheat, oats, pease, barley, flax, corn, and hay, which were observed there, are favourably commented upon. He claims that 50 head of cattle can be kept on 100 acres of land in the Lake St. John district.

9. Farmers and cheese-makers were all evidently anxious to learn and to profit by the opportunities offered to them by the travelling instructors and experimental dairy stations.

10. The cup or rennet test for the ripeness of milk is described and recommended to cheese-makers.

SUMMARY OF THE WORK IN NEW BRUNSWICK.

In New Brunswick, besides the work which was effected through meetings which I attended in that province during the summer, and that reported upon by Mr. John Robertson and Mr. S. L. Peters, the foundation was laid for very thorough and useful service in that province hereafter. The Provincial Parliament has appropriated \$10,000 for the advancement and improvement of dairying in New Brunswick. At a conference with the members of the Provincial Government, to which I was invited, I was able to outline certain plans for work, which are being given effect to in that province with gratifying success. Local dairymen's associations are being formed in many of the agricultural divisions of the province. Three organizers have been employed by the Provincial Government, to hold meetings, give addresses, distribute samples of Indian corn, and assist in the organization of local dairymen's associations. Two travelling dairies are about to begin work under my direction and control, and the Provincial Government have arranged and agreed to pay the expenses which are incurred, up to \$1,500. A provincial dairymen's association has been formed recently, by the enlargement of the name and objects of the Provincial Farmers' Association of New Brunswick, and its incorporation under the name of "The Provincial Farmers' and Dairymen's Association of New Brunswick." On the whole the prospects for a rapid enlargement and improvement in the dairy-

ing practices of this province are bright indeed. The cheese which were shipped from New Brunswick in the autumn of 1891 were sold in the English market at 56s. per cwt. (112 lb.). This was the same as the highest price realized for cheese sent from the Experimental Dairy Stations in Ontario. Cheese from New Brunswick can be made to meet the requirements of the British market quite as satisfactorily as cheese from any of the other provinces of the Dominion. The extension of butter-making during the winter will also lead to a considerable export of that article after the needs of the local markets are supplied.

Mr. John Robertson's Report (New Brunswick).

1. Carleton County has gone most into dairying, and Westmoreland County most into beef raising. Both are naturally adapted for dairy farming.

2. New Brunswick now imports largely of dairy produce; she should provide quantities for export.

3. Cattle are nearly all mixed as to breeding. Ayrshires or their grades are most plentiful. A few Jerseys were noticed, and Holsteins have been introduced into the province lately.

4. Many districts in New Brunswick are admirably adapted for sheep husbandry.

5. Particulars of dairying are given as follows:—Carleton County has one cheese factory and one butter factory; 250 samples of milk were tested, of which the poorest contained 2·5 per cent of fat, and the richest 4·5 per cent. The average quality was 3·69 per cent of fat.

6. The cheese factories were visited a second time, when a considerable improvement in the quality of the cheese was observed. Five lots of cheese for export were made, and were ultimately shipped to the British market.

7. Fourteen meetings were addressed, and the average attendance was about 150.

Mr. S. L. Peters' Report (New Brunswick).

Mr. Peters commenced work late in the autumn. His report mentions that his efforts to improve the quality of the butter in the places which he visited, were very much appreciated. The old-fashioned dash churn, involving more arduous labour, has given place to the revolving or swing churn. Many inquiries have been made about the growing of corn and the construction of silos. Twenty-one meetings were held, nearly all in December; and the total attendance reached 980. Mr. Peters has done the travelling mainly with his own horse and buggy.

SUMMARY OF THE WORK IN NOVA SCOTIA.

In Nova Scotia our work was confined mainly to those parts of the province where cheese factories had been established. The report of Mr. Wheaton outlines very fully what was undertaken in this province during the year. I have attended the annual conventions of the Nova Scotia Dairymen's Association for the last three years. The meetings are increasing in interest and practical utility to the people who attend. An annual report of the proceedings of the convention is issued by the secretary of the association, Mr. Paul C. Black, Falmouth, N.S.

The cheese which were shipped by me from Nova Scotia, went at the same time as the cheese from the sister province of New Brunswick. The Nova Scotia cheese were made in the factory of Mr. L. C. Archibald, at Antigonish. They also sold for 56 shillings per cwt. (112 lb.) and were reported upon very favourably by the men in the trade in England who examined them.

The distribution of sample bags of Indian corn for fodder uses has awakened an interest in this crop.

The following circular which was sent with the sample bags of corn contained a few simple directions:—

DEPARTMENT OF AGRICULTURE,
OFFICE OF THE DAIRY COMMISSIONER, OTTAWA, 1891.

DEAR SIR,—A further development of the dairy business and cattle feeding in connection therewith, will be of immediate and lasting benefit to the Maritime Provinces, if it be undertaken prudently. In order that a larger number of cattle may be kept with profit, it is very desirable that such crops should be grown as will enable farmers to feed them in the cheapest possible way during the winter. For the purpose of introducing and encouraging the practice of growing Indian corn for fodder, provision has been made by the Government, upon the recommendation of the Minister of Agriculture, whereby I am enabled to furnish a small sample bag of Indian corn suitable for that purpose, to every patron of a cheese factory or creamery in these provinces.

PLANTING.

Corn should be planted as early as possible in June.

Land that has been manured and prepared for a crop of roots will be suitable; or a piece of a sod field may be ploughed, manured with rotted manure and planted with corn.

The corn should be planted in rows, 3 feet apart; a shallow furrow may be made with a marker or a plough; the seed should be dropped into it at the rate of from 4 to 6 grains per foot; it should then be covered and the soil pressed firmly over it.

During the summer it should be kept free from weeds by the use of a hoe or a cultivator.

CUTTING AND CURING.

The crop should be cut in the autumn before there is any risk of frost which would damage it to some extent, if it came before the cutting was completed. The corn may be cut with a sickle or a reaping-hook.

Where it is not fed green, it should be tied up in large stooks in the field or yard.

For winter feeding it should be carried to the stable direct from the stooks, or it may be stored loosely with the stalks standing on end in a shed, barn or loft. The stalks should never be laid on their sides in large bulk, or they will heat and mould. If barn or shed room be not available, the corn may be left to stand in stooks, or in long rows tied against both sides of a central pole which may be supported on forked sticks.

Full particulars on the growth of fodder corn in large quantities, and the feeding of the same will be furnished free upon application to the Central Experimental Farm, Ottawa.

I am your obedient servant,

JAS. W. ROBERTSON,

Dairy Commissioner.

Many farmers report that they are preparing to plant from two to five acres each. This will enable them to find an economical method for the wintering of their cattle in better condition than in past years. The succulent feed, which will be available, either from the cured fodder corn, or from ensilage, will make it possible to develop winter dairying in this province also in the near future. From the better feeding of cows during the winter, which the fodder corn will make possible, a larger flow of milk during the summer may be expected, than when dry fodder only was fed while the cattle were in stable quarters. The work in Nova Scotia during the year 1892, should be prosecuted by a travelling instructor visiting the different cheese factories, in order to render the makers such assistance as they need. Meetings of the patrons can be held at each factory, to give them information on the care of milk and its preparation for cheese-making. A few individuals who have erected factories in Nova Scotia, are to be congratulated upon the neatness and convenience with which most of the buildings have been finished.

Mr. J. W. Wheaton's Report (Nova Scotia).

1. Mr. Wheaton visited 20 cheese factories and made 716 tests of milk. Nineteen meetings were held with an average attendance of about 25. Particular interest was manifested in the subject of growing fodder corn. The price realized by the farmers for their milk was from 70 to 75 cents per hundred pounds. The quantity of cheese made in some of the factories in 1891 was less than in former years. That was due to the lapsing of agreements to furnish milk by patrons living at some distance from the factories, who objected to the loss of time occasioned by drawing their own milk. Provision must be made for the collecting of the milk to the factories from the milk-stands of the several farmers. Six factories are controlled by joint stock companies, the others are operated by private individuals.

2. The natural conditions of the valleys of Nova Scotia for dairy farming are pointed out. There is an abundance of fine grass and plenty of water. The nights are cool, which favours the providing of a fine quality of milk. The greatest objection to a successful development of dairying, is from the long period of stable feeding which is required. That is stated as varying from 7 to 8 months.

3. The small-sized cattle are shipped to Newfoundland. The farmers have been prejudiced against growing corn, because of the fear that great expense would be involved in the preserving of it.

4. In cheese factories, the curing-rooms were not kept as clean or tidy as they should have been. Of the samples of milk which were tested, those taken from the vats in cheese factories ranged from 2.9 to 3.8 per cent of fat or an average of 3.32 per cent. A few samples from the milk of individual patrons showed from 4 to 4.5 per cent of fat. One sample indicated as high as 5.3 per cent.

5. One hundred cheese were made for export to the British markets from milk containing from 3.4 to 3.5 per cent of fat.

6. The proposal to start a winter butter-making station in Nova Scotia is thought to be premature, as the farmers are not yet ready with succulent feed for winter or with cows coming in at that season of the year.

SUMMARY OF THE WORK IN PRINCE EDWARD ISLAND.

In this Island province a promise has been made to the farmers that an Experimental Dairy Station will be established in the summer of 1892. Milk from 350 cows has been promised in its support in the neighbourhood of New Perth. The distribution of sample bags of corn has created a great interest in this matter and many farmers who before last year had never grown any corn for cattle-feeding are promising to plant from 2 to 4 acres. The outlook for an enlargement of dairying in the Island is very satisfactory. The natural resources of the Island are such that 25 cheese factories, in which cheese might be made during the summer and butter during the winter, could be in successful operation.

Mr. John Robertson's Report (Prince Edward Island).

1. The fine and fertile appearance of the Island is commented upon and described. The crops of spring wheat were good and spoken of as being better than those of former years. Oats are mentioned as being a good crop, although considerable loss is sustained by the farmers from imperfect cleaning of the grain. The growth of fodder corn is recommended, instead of potatoes, as being more profitable. Hay does well in most districts on the Island.

2. The cattle are mostly Shorthorns and Ayrshires, or their grades. There are a few herds of good Holsteins and their grades. Failures in dairy work in the past have not been due to unfavourable natural conditions. There was only one cheese factory in operation on the Island in 1891. Of the milk which was tested, the sample showing the highest percentage of butter-fat contained 4.25 per cent. The sample showing the lowest percentage of butter-fat contained 3.50 per cent. Twelve meetings were held. •

SUMMARY OF THE WORK IN MANITOBA AND THE NORTH-WEST TERRITORIES.

A meeting of the Manitoba Dairymen's Association was held on the occasion of my visit to Brandon in July, 1891. After the close of this convention, a Provincial Farmers' Institute was organized. Two travelling dairies, under the charge of Messrs. McEwan and Whitley, commenced their work in July. In the reports of these gentlemen, particulars will be found of the work which was undertaken. The following circular which was issued states the character of the work which was undertaken by these travelling dairies:—

DOMINION OF CANADA,
DAIRY COMMISSIONER'S OFFICE,
OTTAWA, July, 1891.

DEAR SIR,—I have been directed by the Honourable the Minister of Agriculture to take such steps, for the dissemination of information on the best practices in dairying, as will promote an improvement in the quality of the butter and cheese which are made in all the provinces of Canada.

In Manitoba and the North-West Territories, dairying can be followed with profit and satisfactory success in many districts. The soil, the pasturage, the fodder crops, and the climatic conditions, are all favourable for the production of the finest quality of milk, butter, cheese and beef. By a system of mixed farming, the farmers may fortify themselves against disastrous loss from the very serious risk which is incurred by any individual or community, that depends exclusively upon one crop or upon grain-selling alone.

For the purpose of giving practical instruction and an illustration of the best methods of making cheese and butter, one of my assistants, Mr..... will visit.....on.....

It is desirable that a meeting of the farmers should be called for that date. If you will be good enough to distribute the bills which have been sent to you, and also make any necessary arrangements for securing a SCHOOL HOUSE or HALL, as a place of meeting, I will esteem it a favour to myself and also to the community amongst whom you reside. If quite convenient, please secure one or two gallons of cream for the occasion, to be used in giving a practical lesson in butter-making.

I am, Sir, your obedient servant,

JAS. W. ROBERTSON,

Dairy Commissioner.

Mr. J. B. McEwan's Report.

1. Mr. McEwan spent the time between May 17th and June 5th, in the Belleville district, visiting cheese factories. He visited 9 factories, giving the first day in each case to milk-testing and cheese-making and the second day to milk-testing and a meeting of the patrons. The subjects presented at these meetings were, winter dairying, lessening the cost of production, fodder corn for ensilage, breeding of dairy stock, Babcock milk tester, and the payment for milk according to its fat contents. He speaks of the Madoc district as being particularly well adapted for the extension and development of dairying.

2. Cheese factories he found to be in rather a poor condition as to buildings. Curing rooms were specially faulty in construction, little provision being made for maintaining an equable temperature. He recommends more confidential exchange of opinion between the cheese-makers and salesmen. With an absence of this, sometimes cheese which are made to cure rapidly, are held until they lose their flavour, and sometimes cheese which are made to cure slowly, are sold before they are fit for shipment. The quality of the milk examined ranged from 2.6 per cent of fat to 3.6 per cent, with an average in all factories of 3.4 per cent. He recommends the use of milk aerators. The tendency to reduce the salaries of cheese-makers is having the effect of keeping good men from going into the business.

3. Mr. McEwan went to Manitoba in July. He visited 15 cheese factories, 7 creameries and held 20 meetings in Manitoba and the North-West Territories.

4. He spent two weeks at the cheese factory at Manitou, manufacturing cheese for shipment to the Central Dairy Station. He spent one week at the Winnipeg Exhibition and acted as judge of dairy products there. He reports the quality of the butter as most excellent. Much interest was taken in all the meetings and in the instruction which was given at the cheese factories. The most interest was manifested in those districts where Farmers' Institutes have been established. General notes on the appearance of the country, its cattle, pasturage and water, have been made. Of the creameries which were visited, 5 are operated upon the centrifugal cream separator plan and 2 upon the cream gathering plan. The prices realized to the patrons from the sale of butter, varied from 65 cents to 80 cents per hundred pounds of milk. The pounds of milk required per pound of butter ranged from 24 pounds in the spring to 18 pounds in October. The butter is sold mainly in Manitoba and British Columbia at prices from 18 to 25 cents per pound.

5. Inspectors of butter have been appointed at Virden, Grenfell and Wolseley. The butter is sorted into three grades and sold at differences of from 2 to 3 cents

per pound per grade. Some buyers do not purchase the butter until after it has been inspected by the official inspector. The quality of the milk found in individual cases varied from 2 per cent of fat to 4.6 per cent. The quality of the milk from the milk-vats in factories varied from 3.75 per cent to 4.2 per cent of fat. The average number of pounds of milk required to yield one pound of cheese ranged from 9.12 to 9.34 pounds. The price last season averaged $10\frac{1}{2}$ cents per pound of cheese. There are different modes of payment for the milk delivered. In one case 25 per cent of the gross receipts from sales go to the manufacturer. In another $2\frac{1}{2}$ cents per pound of cheese manufactured is the charge. At another factory the milk is purchased at 70 cents per hundred pounds.

Mr. C. F. Whitley's Report.

Mr. Whitley rendered some help at the dairy station on the Central Experimental Farm, prior to his leaving for Manitoba. In Manitoba he attended 20 meetings. In all about 730 persons attended the meetings. He, as well as Mr. McEwan, was equipped with a kit for the making of butter, and gave illustrations of butter-making from the platforms at the meetings which were held. He furnished a list of about 700 names of those who desired to receive dairy bulletins hereafter. He points out that the tendency in Manitoba is more towards mixed farming and dairying than it has been in past years. Three creameries on the Manitoba and North-Western Railway are referred to. At one of them the cream-collecting waggon travels 30 miles. But little convenient accommodation for dairying has been provided at the farm houses, and discrimination by the storekeepers in the prices which have been paid for different qualities has not been very marked. He recommends furnishing to each storekeeper, slips giving brief points on butter-making, to send out with their tubs. General notes on the grasses, cattle and natural resources of Manitoba have been given. The success of a few men is specified and it is thus pointed out that others may succeed equally well along similar lines.

SUMMARY OF THE WORK IN BRITISH COLUMBIA.

In British Columbia I was able to address nine meetings. A side journey was made from Sicamous into the Okanagan Valley. A new railway was under course of construction, and a hand steam car was in use on the track as far as Enderby, which is some twenty-five miles distant from Sicamous. Between Enderby and Vernon the valley is of irregular widths, with many arms reaching back between and behind the adjacent hills. At few places is the width greater than from two to three miles, and at many places it is not more than one mile wide. It offers excellent facilities for mixed and dairy farming, although the latter branch of agriculture has not received much attention in past years. The other places in British Columbia, which I visited, were Agassiz, Chilliwack, Langley, Town Hall at Maple Ridge, Ladner's Landing, New Westminster, Victoria and Vancouver. I addressed meetings at each of these places. In my addresses delivered in other parts of Canada since my return from British Columbia, I have enlarged at some length upon the natural resources and opportunities which British Columbia offers for dairy farming and settlement by a class of agriculturists, who can take some capital to the province with them. On both sides of the Fraser River, the valley land is very fertile. I saw crops of hay which would yield more than three tons per acre, and crops of oats which would give 100 bushels to the acre. Some farmers have as many

as from forty to fifty cows each. Small fruits and large fruits grow in luxuriant abundance, and fruit canning factories are being started at several places.

MEETINGS AND LECTURES.

Besides the work which has been reported upon in the several provinces, I attended and delivered addresses at forty-nine conventions or meetings of farmers and dairymen of from two to five sessions each during 1891. They were distributed in the provinces in the following order: Ontario, 19; Quebec, 8; New Brunswick, 2; Nova Scotia, 4; Prince Edward Island, 3; Manitoba, 3; North-West Territories, 1; British Columbia, 9. My assistants also attended and gave addresses upon 242 occasions, most of which are mentioned in their reports in this volume. During 1892, to this date (30th April) I have attended fourteen meetings of farmers and dairymen, most of which have been conventions of provincial nature and scope. Of these, 8 were held in Ontario, 2 in Quebec, 1 in New Brunswick, 1 in Nova Scotia and 2 in Prince Edward Island. The number of applications for my presence at conventions of farmers has outgrown all possibility of compliance on my part with one-quarter of them. The Order in Council by which I was appointed Dairy Commissioner, sets forth the fact that the main object and sphere of my work was the diffusing of practical information among the farmers of the Dominion, by means of bulletins, conferences and lectures. Other duties which have grown up in connection with experimental investigations at the Central Experimental Farm and the establishment of Branch Experimental Dairy Stations, have curtailed the time which is available for public meetings. These new branches of work are not less important to the dairy and agricultural interests of Canada than the delivery of lectures. In fact, they furnish the subject matter, which is most useful for presentation to the farmers and dairymen. The particulars from these investigations which relate to the feeding of cattle, the fattening of swine, experiments in the dairy, the growth of forage crops and the making of ensilage, have been reported upon in my capacity as Agriculturist to the Central Experimental Farm. They are also presented under the first five parts of this report, which are mentioned hereafter. I have considered it to be in the interests of the farmers and dairymen, that the substance of some of the lectures which were delivered upon different occasions, should be brought to the attention of many of them, whom the voice of one speaker cannot hope to reach. I have been furnished with stenographic reports by the several organizations before whose members they were delivered, and I have revised them from the notes from which I spoke at these gatherings.

For the sake of clearness, convenience of reference and the service of those who may consult its pages for guidance in their own practices, the further matter of this report is arranged under the following heads:—

Part I.—Cattle.

Part II.—Swine.

Part III.—Experimental Dairy.

Part IV.—Forty Acre Lot.

Part V.—Fodder Corn and the Silos.

Part VI.—Lectures and Addresses.

Part VII.—Condensed Milk.

Part VIII.—Report of the Assistant Dairy Commissioner, Mr. J. C. Chapais, St. Denis, Que.

Part IX.—Reports of Superintendents of Experimental Dairying.

The volume of trade from Canada in the exports of butter and cheese is shown by the following tables:—

DOMINION OF CANADA—Exports of Dairy Products—Home Production.

BUTTER.

Year.	Quantity.	Value.	To Great Britain.	To United States.	To France.	To Germany.	Other Foreign Countries.	B. N. A. Provinces.	British Indies.
	Lb.	\$	\$	\$	\$	\$	\$	\$	\$
1868....	10,649,733	1,698,042	544,707	1,015,702	.....	1,496	14,870	95,777	26,986
1880....	18,535,362	3,058,069	2,756,064	111,158	.....	.....	24,710	163,290	2,847
1881....	17,649,491	3,573,034	3,333,419	58,522	.....	.....	30,574	143,935	6,584
1882....	15,161,839	2,936,150	2,195,127	529,169	.....	.....	32,052	169,270	10,538
1883....	8,106,447	1,705,817	1,330,585	206,154	.....	.....	29,446	131,341	8,291
1884....	8,075,537	1,612,481	1,395,652	46,618	.....	.....	16,455	151,224	2,532
1885....	7,330,788	1,430,905	1,212,768	16,795	.....	15,172	21,473	161,862	2,835
1886....	4,668,741	832,355	652,863	17,545	.....	.....	17,577	142,485	1,885
1887....	5,485,509	979,126	757,261	17,207	.....	.....	23,789	180,238	631
1888....	4,415,381	798,673	614,214	13,468	.....	.....	5,226	164,329	1,436
1889....	1,780,765	331,958	174,027	7,879	.....	.....	22,921	124,349	2,782
1890....	1,951,585	340,131	184,105	5,059	.....	.....	29,342	119,989	1,636
1891....	3,768,101	602,175	440,060	10,054	.....	20,447	24,021	101,649	5,944

CHEESE.

1868....	6,141,570	620,543	548,574	68,784	.....	.....	891	1,954	340
1880....	40,368,678	3,893,366	3,772,769	114,507	.....	.....	170	5,710	210
1881....	49,255,523	5,510,443	5,471,362	28,500	.....	.....	14	10,027	540
1882....	50,807,049	5,500,868	5,471,676	18,436	.....	.....	242	8,196	2,318
1883....	58,041,387	6,451,870	6,409,859	24,468	.....	.....	202	15,480	1,863
1884....	69,755,423	7,251,989	7,207,425	24,866	.....	.....	188	19,248	262
1885....	79,655,367	8,265,240	8,178,953	68,978	.....	.....	205	15,899	1,207
1886....	78,112,927	6,754,626	6,729,134	15,478	80	90	156	9,139	549
1887....	73,604,448	7,108,978	7,065,983	30,667	.....	.....	211	11,982	165
1888....	84,173,267	8,928,242	8,834,997	83,153	5	.....	828	9,087	172
1889....	88,534,887	8,915,684	8,871,205	31,473	.....	.....	1,582	11,208	216
1890....	94,260,187	9,372,212	9,349,731	6,425	.....	370	2,154	12,777	755
1891....	106,202,140	9,508,800	9,481,373	13,485	.....	.....	1,954	9 104	2,884

The following table, from the Board of Trade returns of Great Britain for six years (ended 31st December), shows the total quantities and values of butter and cheese imported into Great Britain and illustrates the possible extension of our exports, particularly in fresh-made butter during the winter season.

BUTTER.			CHEESE.		
Year.	Quantity.	Value.	Year.	Quantity.	Value.
	Cwts.	£		Cwts.	£
1886....	1,543,566	8,141,438	1886....	1,734,890	3,871,359
1887....	1,513,134	8,010,374	1887....	1,836,789	4,514,382
1888....	1,671,433	8,913,045	1888....	1,917,616	4,546,408
1889....	1,927,842	10,244,636	1889....	1,907,999	4,490,970
1890....	2,027,717	10,598,848	1890....	2,144,074	4,975,134
1891....	2,135,607	11,591,181	1891....	2,041,317	4,815,369

ACKNOWLEDGMENTS.

To the newspapers of Canada is due much credit for the public-spirited assistance which they have given in attracting the attention of farmers to the possible benefits which would accrue to themselves and all other industrial, commercial and professional interests from the adoption of the best methods of dairy farming. In our work the press has lent us invaluable aid; towards our work its attitude has been friendly to a fault; and of our work columns of appreciative commendation have appeared for every iota of unfriendly criticism or opposition.

To the officers and members of the Farmers' and Dairymen's Associations, to the officers and members of the Farmers' Institutes, and to thousands of the sturdy, hard-working, warm-hearted farmers of Canada from the shores of the Pacific to the Atlantic coast, I am under a sense of deep personal and official obligation for the many courtesies which they have extended, for the ready and hearty co-operation which they have accorded, and for the all-too-generous gratitude with which they have received and acknowledged the service which we have been able to render.

The thoroughness and successful outcome of some of the work which has been undertaken, depends in a large measure upon the faithfulness and efficiency of my assistants whose names are not often brought to public notice to receive the due recognition and appreciation which the value of their labours merits. I take this opportunity of acknowledging the excellent quality of their work and of commending a careful perusal of their reports.

I have the honour to be, Sir,

Your obedient servant,

JAS. W. ROBERTSON,

Dairy Commissioner.

PART I.—CATTLE.

To the herd of cattle, only a few thorough-bred animals were added by purchase during the year. They were almost immediately thereafter shipped to the branch experimental farm at Brandon, Man.

Shorthorn.

From Mr. W. S. Hawkshaw, Glanworth, Ont.:

One bull calf, General H.—14574—; red; calved 15th December, 1890; bred by W. S. Hawkshaw, Glanworth, Ont.; got by Aberdeen Hero (Imp.)—; dam, Countess of Hawkhurst—8752—; by 3rd Duke of Rutland—559—; Countess 2nd—784—; by Lord Ramsden—794—.

Holsteins.

From Messrs. A. C. Hallman & Co., New Dundee, Ont.:

One cow, Queen of Waterloo, No. 14666, H.F.H.B., No. 163, H.F.H.B.C.; calved 12th April, 1888; bred by A. C. Hallman & Co., New Dundee, Ont.; sire, African Prince, No. 1270, H. F. H. B.; dam, Mina Rooker 2nd, No. 3742, H.F.H.B.

One cow, Princess Leda 2nd, No. 18510, H.F.H.B., No. 141, H.F.H.B.C.; calved 6th January, 1889; bred by A.C. Hallman & Co., New Dundee, Ont.; sire, Netherland Monk, No. 4424, H.H.B.; dam, Princess Leda, No. 7130, H.F.H.B.

Ayrshires.

From Messrs. Kains Bros., Byron, Ont.

One bull, Middlesex—1216—; red and white; calved 10th September, 1890; bred by Kains Bros., Byron, Ont.; sire, Prince of Byron—583—; dam, Jeanie of Auchebraun, (Imp.)—129—; by Duke 3rd—647—; Paisley, by Wallace of Drumlanrig—61—. From Messrs. David Morton & Sons, Hamilton, Ont.

One heifer, Dandy 2nd (imported in dam)—2004—; brown and white; calved 6th April, 1889; bred by Hugh Jack (Little Shewalton), Irvine, Scotland, imported by David Morton & Sons, Hamilton, Ont.; sire, Dandy Jim (1579); dam, Dandy 1st (5502), by Red Prince (1000).

One heifer, Jewel—2003—; white and brown; calved 14th June, 1889; bred by Hugh Jack (Little Shewalton), Irvine, Scotland; imported by David Morton & Sons, Hamilton, Ont.; Sire, Dandy Jim (1579); dam, Judy (Imp.) (5505); by Red Prince (1000).

Galloways.

We exchanged a bull calf which we had received in 1890 from Mr. Thomas McCrae, Guelph, Ont., for one bull, Chester (4472) 6760; calved March, 1887; bred by D. McCrae, Guelph, Ont.; sire, Stanley III of Drumlanrig (Imp.) (1793) 2833; dam, Chrissy (Imp.) (7099) 2587; by Chipperkyle (2332).

The four animals of the Galloway breed, which we had at the Central Experimental Farm, were sent to the Brandon farm, together with four Shorthorns and one young Holstein bull.

Grade Steers.

In October, 1891, sixteen grade steers were purchased for the carrying on of investigations into the effects of different rations for the feeding and fattening of cattle.

GENERAL MANAGEMENT.

SUMMER.—The hours of the stablemen were from 6 a.m. to 6 p.m., and four hands were employed. The assistant from the experimental dairy fed the calves. The bulls, part of the cows and the calves, were kept in the stables and fed on green fodders. The area of pasture land has been small for the number of cattle which have been kept. The animals not in the stables were inspected, and fed allowances of green fodder every day during the greater part of the season. The same hands looked after the experimental piggery and fed from 20 to 40 pigs.

WINTER.—The hours of the stablemen are from 6 a.m. to 5 p.m., and six hands are employed. Experiments in feeding are in progress, with 25 cows, 21 steers and 36 swine. Nine different rations are fed daily to cows, steers, bulls and calves. The quantity of feed consumed daily, by each animal, or group of animals, is weighed and recorded. The stalls and gutters in the main stable are cleaned out twice daily; the box stalls are cleaned out every second day. The cattle are curried daily, with a few exceptions; and the udders of the milking cows are brushed carefully before each milking. All the breeding and other animals—which are not weighed oftener in some special test—are weighed once every month.

Abortions.

During 1890 the disease of epidemic abortion was reported as prevailing in the herd. The method of treatment, which was then adopted, was described:—

I. The stables were thoroughly fumigated by the burning of sulphur, saturated with alcohol, with the doors and windows closed for three hours. Of course, all the cattle were out.

II. A wash was made up of 1 part of bichloride of mercury to 4,000 parts of water, into which solution were put 8 ounces of common salt; once a day the bare skin around the vulva, the anus and the root of the tail of the cows in calf, and also of those which had aborted, were sponged with the solution.

III. After several weeks of that treatment, the following was adopted as being preferable: $2\frac{1}{2}$ drachms of bichloride of mercury were dissolved in $3\frac{1}{4}$ ounces of glycerine and $3\frac{1}{4}$ ounces of alcohol; after these had united, $4\frac{1}{4}$ gallons of rain water were added. (The mixture should be kept in a wooden vessel, out of the reach of irresponsible persons, and animals). The bare skin under the tail and around that part was moistened once a day with the solution.

IV. The cows, which formerly had been turned out into a large yard every day for water, were watered from troughs in front of their stalls.

V. When a pregnant cow showed any symptoms of approaching abortion—and these are, slight relaxation of the muscles surrounding the vulva, restlessness and a continuous slight elevation of the tail—she was at once put into a box stall, where she was free from disturbance or causes of excitement. One-ounce doses of tincture of opium were given in the feed—even three times a day for one or two days until a quiet and slightly sluggish condition prevailed. Drenching with medicine was avoided.

The result is—and it is mentioned with hesitation and fear, lest the dread abortions should occur again—that since the system of treatment has been adopted 13 cows have given safe delivery to calves at the natural time, and only one case of abortion has occurred, and that could be accounted for satisfactorily. That covers a period of three and a-half months. During the preceding ten months there were 13 births at the natural time, and 14 prematurely, at from four and a-half to eight months.

The preceding six paragraphs have been copied from my report of 1890. During 1891 the number of births at the natural time was 34. There were 3 cases of abortion; one of these was that of a cow which had a similar misfortune last season; another of the cases could be accounted for afterwards, in so far as it was discovered that the cow was affected with an incurable disease, which had a tendency to provoke uterine disorders; the third case was that of a grade heifer, and for it no satisfactory reason could be assigned. There were also two cases of still-born calves.

Lice on Cattle.

Government property has no greater immunity from the attacks of parasites than that of private individuals, and during the winter of 1890-91 some of the cattle became infested with lice. That fact is mentioned for the purpose of stating that a most effective, safe and simple treatment can be given by applying a kerosene emulsion. The method of preparation is described thus in Bulletin No. 11, prepared by Mr. Fletcher, Entomologist:—

Kerosene (coal oil).....	2 gallons
Rain water.....	1 do
Soap	$\frac{1}{2}$ pound

“Boil the soap in the water till all is dissolved; then, while boiling hot, turn it into the kerosene, and churn it constantly and forcibly with a syringe or force pump for five minutes, when it will be of a smooth, creamy nature. If the emulsion be perfect it will adhere to the surface of glass without oiliness. As it cools it thickens into a jelly-like mass. This gives the stock emulsion.”

For use on the cattle it was diluted with 18 times its measure of water. Besides killing the lice, it seemed to have a beneficial action on the hair and skin. One-quarter of the quantity mentioned above is sufficient for a large herd.

Dehorning.

On 3rd December the operation of dehorning was performed on 4 three-year old steers, and on one Jersey bull five years old.

Through questions which have been asked at conventions and farmers' institutes, and by letters which have been received, an opinion has been asked repeatedly during the past two years upon the subject of dehorning cattle. Farmers who have sufficient open-shed or closed-in-shed convenience for the fattening of steers if they could be allowed to run loose with safety, have made frequent applications for information. The practice has become common in many of the States of the Union.

The references which have been made to it in the columns of the agricultural press provoked further curiosity and interest on the part of Canadian farmers, to learn from some authoritative source in Canada what effect the operation would have. The mode of procedure was to put each steer into the sling which we use for lifting the bulls when the hoofs are to be trimmed. The neck was fastened securely between two upright pieces of scantling, one of which was movable at the top, after the style of the common old-fashioned stable stanchion. The head was then, tied to one side. The hair around the base of each horn was clipped off, to permit the cutting to be effected in such a way as to remove a narrow ring of skin with the horn. Leavitt's dehorning machine was used on two horns. It is constructed in such a way as to clip the horn off at one snap. In the case of three-year-old steers, the horns were too hard and tough for one man to use the machine with sufficient quickness of motion. For the other horns, a common fine-toothed carpenter's saw was used.

The operation on each horn lasted from one quarter to one half of a minute. In the case of two of the steers, the saw cut through an artery, from which a small jet of blood spurted. The wounds on the heads of two of the steers, appeared to be acutely painful for nearly a week; the other two animals did not appear to suffer any inconvenience after the operation was ended. It was not expected that blood would flow so freely from the wounds as it did in the two cases mentioned, and no particular preparation had been made to staunch the flow at once. A cloth covered with coal-tar, is probably one of the most accessible and suitable applications which can be made on the ordinary farm. The steers have been fed in box stalls, running loose in pairs, and they seem to be most healthy and gentle since the wounds healed.

In the case of the Jersey bull, he had become so vicious that the attendants went into his box-stall only at the jeopardy of their lives. Instructions had been given several months previously that no one was to go into his box-stall until after he had been securely tied. For the dehorning operation, the bull was tied in a similar manner to the steers. His horns were sawn off as close to the skull as possible. Not a thimbleful of blood altogether was shed; and when he was turned loose in his box-stall he acted as mildly as a sheep.

A full report on the feeding of the dehorned steers will appear after the completion of the experiment, which is expected to last until after April, 1892.

THE FEEDING OF SIX STEERS.

Six steers were purchased for feeding purposes in November, 1890. They were a fairly even lot of two-year-olds, and apparently were grades of Shorthorns. On 1st December, 1890, the average weight was 1,135 lb. each. They were weighed every week, and all the feed which they consumed was weighed every day. They had free access to water in a trough in front of the stalls, and a supply of salt was provided at one side of each manger. The following Table shows the weight of each steer on 1st December, 1890, and every four weeks thereafter until 18th May, 1891.

—	Dec. 1.	Dec. 29.	Jan. 26.	Feb. 23.	Mar. 23.	April 20.	May 18.	Total Gain
Steer No. 1	1,220	1,305	1,355	1,390	1,420	1,486	1,493	273
“ No. 2	1,120	1,195	1,200	1,256	1,255	1,350	1,374	254
“ No. 3	1,037	1,096	1,102	1,188	1,191	1,235	1,317	280
“ No. 4	1,170	1,230	1,263	1,310	1,316	1,385	1,442	272
“ No. 5	1,225	1,302	1,308	1,361	1,386	1,396	1,430	205
“ No. 6	1,040	1,081	1,108	1,175	1,207	1,257	1,263	223

The rate of increase in weight was not nearly so rapid as it might have been if all the animals had been fed in a stable, where they could feed and lie undisturbed. In our stable there is such a succession of visitors that the animals are disturbed, I suppose, a dozen times daily. The disturbances and consequent unfavourable conditions were alike for all the animals, and did not interfere with the fairness of the comparison, although they did hinder the rapidity of the fattening.

The six steers were fed on the same ration until 29th December. They were divided into three lots of nearly equal age and weight, and evidently of similar breeding. The main object of the test was to discover the value of corn ensilage as compared with common hay. One lot of steers were fed on a ration composed of hay, roots and meal; another lot of steers were fed on a ration of corn ensilage, with the same kind and quantity of meal; and the third lot of steers were fed on a ration consisting of corn ensilage, hay and roots, and an equal quantity of meal of the same quality as the other two rations contained.

The compositions of the rations were as follows:—

FIRST LOT OF STEERS, Nos. 1 and 2:

	Lb.
Hay	20
Turnips.....	40
{ Straw	5
{ Chopped barley.....	2
{ do pease.....	2
{ Ground oil-cake	1
{ Cotton-seed meal.....	1
	<hr/> 71

For a period of five weeks, from 17th March to 20th April, one pound each of oil-cake and cotton-seed meal were added to the ration.

For the whole period of 20 weeks, from 29th December to 18th May, each steer consumed an average of 55.5 lb. per day.

SECOND LOT OF STEERS, Nos. 3 and 4:

	Lb.
Corn ensilage.....	50
{ Straw.....	5
{ Chopped barley.....	2
{ do pease.....	2
{ Ground oil-cake	1
{ Cotton-seed meal	1
	<hr/> 61

For a period of five weeks, from 17th March to 20th April, one pound each of oil-cake and cotton-seed meal were added to the ration.

For the whole period of 20 weeks, from 29th December to 18th May, each steer consumed an average of 60 lb. per day.

THIRD LOT OF STEERS, Nos. 5 and 6:

	Lb.
Corn ensilage.....	20
Turnips.....	20
Hay.....	10
{ Straw	5
{ Chopped barley.....	2
{ do pease	2
{ Ground oil-cake.....	1
{ Cotton-seed meal.....	1
	<hr/> 61

For a period of five weeks, from 17th March to 20th April, one pound each of oil-cake and cotton-seed meal were added to the ration.

For the whole period of 20 weeks, from 29th December to 18th May, each steer consumed an average of 52·8 lb. per day.

For the purpose of making a comparison between the actual cost of feeding steers on the three different rations, a market value was estimated for the component fodders in each. The hay was valued at \$8 per ton; roots (turnips or mangels) at \$4 per ton; straw at \$4 per ton; pease and barley at \$20 per ton; and cotton-seed meal and oil-cake at \$30 per ton. The corn ensilage cost \$1·40 per ton, as per statement in Bulletin No. 12, issued by Prof. Saunders in June, 1891. It will be observed that the corn ensilage was placed at cost, and the other fodders at an estimated market price; but it will not be considered by farmers, in many districts in Canada, that they can produce hay at a cost below \$8 per ton, or roots below \$4 per ton.

The following Table shows (1) the increase in weight of the steers in 20 weeks; (2) the quantity of feed consumed per day, and (3) the cost per head per day for feed:—

TABLE II.

—	Ration.	Increase in Weight.	Average feed con- sumed per day.	Average cost of feed per day.
		Lb.	Lb.	Cents.
First lot..	{ No. 1..... Hay, roots and meal	188	} 55·5	19·23
	{ No. 2..... do do	179		
Second lot	{ No. 3..... Corn ensilage and meal.....	221	} 60·	11·90
	{ No. 4..... do do	212		
Third lot	{ No. 5..... Hay, roots, corn ensilage and meal.	128	} 52·8	15·58
	{ No. 6..... do do do ..	182		

All the steers were allowed as much feed as they could eat up clean; and the quantity was varied from time to time, as they would eat more or less.

It may be mentioned, in explanation of the small increase in weight of steer No. 5, that he did not thrive well, part of the time. That could not be accounted for satisfactorily. He seemed to be healthy, but, as everyone who has fed cattle knows, an animal "will go off his feed" occasionally and will not thrive.

It will be observed that the steers fed on the corn ensilage and meal ration gained an average of 33 lb. each more than those on the ration of hay, roots and meal, during the 20 weeks.

During the last month of the testing period steers No. 3 and 4, on corn ensilage and meal, gained in weight much faster than the others; and when the experiment was finished they were in more attractive condition for handling and selling.

Table III shows the quantities of the digestible constituents in the feed, consumed by the several lot of steers, as calculated from the following table, which is reproduced from the report of 1890 :—

QUANTITIES of Digestible Protein, Carbo-hydrates and Fat, in each pound of certain Feeds, from tests with ruminants—(Oxen and Cows.)

	Total Dry Organic Matter.	Digestible Protein.	Digestible Carbo- hydrates.	Digestible Fat.
	Lb.	Lb.	Lb.	Lb.
Wheat. 1 lb.	·89	·095	·588	·014
Barley. do	·89	·094	·600	·026
Oats. do	·87	·080	·440	·044
Pease. do	·87	·201	·534	·029
Oil-cake. do	·92	·283	·368	·050
Cotton-seed meal. do	·92	·336	·264	·070
Wheat bran. do	·87	·117	·453	·027
Mixed straw (wheat, barley, oat). do	·85	·035	·330	·004
Mixed hay. do	·86	·051	·430	·012
Corn ensilage. do	·25	·016	·230	·006
Corn stover. do	·48	·033	·480	·008
Turnips. do	·085	·010	·075	·001
Mangels. do	·120	·011	·100	·001
Carrots. do	·141	·013	·115	·002
Sugar beets. do	·185	·010	·167	·001

TABLE III, showing the average quantities consumed, per day, by the two Steers in each lot.

	Rations.	Total Dry Organic Matter.	Digestible Protein.	Digestible Carbo- hydrates.	Digestible Fat.
		Lb.	Lb.	Lb.	Lb.
First lot, steer No. 1..	Hay, roots and meal ...	47·64	4·60	25·34	·87
do No. 2..					
Second lot, steer No. 3.	Corn ensilage and meal....	44·04	4·55	31·65	1·13
do No. 4..					
Third lot, steer No. 5..	Hay, roots, corn ensilage and meal.....	43·62	4·41	25·98	·93
do No. 6..					

EXPERIMENTS IN PROGRESS.

At the present time, experiments are in progress with twenty steers :

THREE-YEAR-OLDS.—Two steers which were dehorned are being fed in a loose box (where the temperature is almost as low as in a shed with single board sides) on a ration of—

	Lb.
Corn ensilage	50
Straw.....	5
	<hr/> 55

Two steers of the same age and similar quality, also dehorned, are being fed in a like manner, on a ration of—

	Lb.
Corn ensilage.....	50
Straw.....	5
Oil-cake	2
Ground pease.....	2
do barley.....	2
	<hr/> 61

TWO-YEAR-OLDS.—Two steers are being fed upon each of the following rations :

No. 1.	Lb.	No. 2.	Lb.	No. 3.	Lb.	No. 4.	Lb.
Corn ensilage. . .	20			Corn ensilage....	50	Corn ensilage..	50
Hay.....	10	Hay.....	20				
Roots	20	Roots.....	40				
Straw.....	5	Straw.....	5	Straw.....	5	Straw.....	5
Oil-cake.....	2	Oil-cake.	2	Oil-cake.....	2	Frozen wheat..	6
Ground pease...	2	Ground pease..	2	Ground pease..	2		
do barley..	2	do barley..	2	do barley..	2		
	<hr/> 61		<hr/> 71		<hr/> 61		<hr/> 61

YEARLINGS.—Two yearling steers are being fed in a loose box, similar to those used for the three-year olds, on ration No. 3; and two other steers of equal age are being fed on the same ration in the ordinary stable,

CALVES.—Two steer calves—one Shorthorn grade and one Quebec Jersey grade —are being fed on ration No. 2; and two steers of an equal age, and similar breeding, are being fed on ration No. 3.

These experiments will furnish data, also, upon the number of pounds gained in weight, and the quantity of feed consumed per pound of increase in live weight, by *three-year-old, two-year-old, yearling* and *calf* steers, respectively, when fed upon the same ration.

THE FEEDING OF MILKING COWS.

The object of this test was to discover the effect of substituting corn ensilage for hay and roots, and also the effect of substituting hay and roots for corn ensilage in the ration of milking cows. A study was also made of the economic effect of feeding different quantities of ground grain and meal in the rations. Eighteen milking cows were selected. For one week they were all fed upon a ration composed of—

	Lb.
Corn ensilage.....	25
Roots (carrots, mangels).....	20
Straw (oat and barley).....	10
Bran	3
Meal (pease, barley, oats).....	2
Cotton-seed meal.....	2
	<hr/> 62 <hr/>

Each animal was allowed as much of the mixture as it would eat every day. Twelve of the cows (afterwards Lots 1, 2, 3 and 4) were fed twice a day; and six of the cows (afterwards Lots 5 and 6) were fed three times daily. The eighteen cows were divided into three groups of six cows each. The six cows of each group were again divided into two lots of three cows each. The cows in each lot were arranged in such a way that the cows in the one lot of each group, were of nearly equal weights, milking capacity and period of lactation, with the cows of the other lot in the same group. For the first four weeks of the experiment eight tests of the morning and eight tests of the evening milk of each cow, were made with the Babcock milk tester, to determine the percentage of fat. Only four tests of the morning milk and four tests of the evening milk of each cow, were made during the second feeding period, after which the testing apparatus was unexpectedly required for the work of the travelling dairy instructors. The tests, which had been made, twice of morning milk and twice of evening milk, of each cow, every week, had shown such wide variations and unaccountable fluctuations in the quality of the milk of the same cows that it was decided that the data on the percentage of fat in the milk could not be considered reliable unless the milk were tested every day.

A series of experiments to discover the effect of the quality of the feed upon the percentage of the solid constituents in the milk of 25 cows has been undertaken since, and will be reported upon when it is concluded. At the time of writing, enough information has been secured to warrant the statement that a progressive increase in the richness of the ration, by the addition of one pound of meal per cow per day, every fortnight, does not appear to have any appreciable effect towards increasing the percentage of solids in the milk, within three months.

THE COWS OF GROUP I., Lot 1 (Daisy, Pinkie, Blossom) were grade Shorthorns, and at the commencement of the test—23rd March, 1891—had been milking for an average period of 46 days. The average weight of the cows was 1,195 lb. each.

First Period.

From 23rd March to 19th April the three cows of Group 1, Lot 1, were fed on ration 1, which was composed as follows:—

	Lb.
Corn ensilage.....	60
Wheat bran.....	2
Chopped pease.....	2
Oil cake.....	2
Cotton-seed meal.....	2
	<hr/> 68 <hr/>

Of that mixture each cow consumed an average of 92·7 lb. per day. The 92·7 lb. of the mixture contained 10·9 lb. of the mixture of bran, chopped pease, oil-cake and cotton-seed meal. The cost per day was calculated on the same basis of valuation as was used in the tests in the feeding of steers, viz.:—hay at \$8 per ton; roots at \$4 per ton; wheat, bran, pease and barley at \$20 per ton; and cotton-seed meal and oil-cake at \$30 per ton. Corn ensilage cost \$1·40 per ton, as per statement in Bulletin No. 12, issued by Prof. Saunders in June, 1891. Upon that scale of values, the cost per day was 19·37 cents per cow for feed.

The average quantity of milk, which had been yielded by the three cows during the weeks which preceded this test—1st March to 22nd March—was 28·3 lb. each per day. From 23rd March to 19th April the average quantity of milk was 28·94 lb. per cow per day.

The average quality of the milk, as determined by eight tests of morning milk and eight tests of evening milk of each cow, showed 3·52 per cent of fat.

The animals weighed an average of 1,195 lb. each at the commencement, and an average of 1,207 lb. each at the end of the four weeks.

Second Period.

After the feeding of the ration 1, for four weeks, the quantity of corn ensilage was increased to 90 lb., with the same quantity of meal as before. The ration as then arranged was:—

	Lb.
Corn ensilage.....	90
Wheat bran	2
Chopped pease.....	2
Oil-cake.....	2
Cotton-seed meal.....	2
	<hr/>
	98
	<hr/>

Of that mixture each cow consumed an average of 95 lb. per day, which contained 7·7 lb. of the meal mixture—bran, chopped pease, oil-cake and cotton-seed meal.

The cost per day was 15·77 cents per cow, or 3·6 cents per cow less than in the former case.

The average quantity of milk was 26 lb. per cow per day.

The animals weighed an average of 1,200 lb. each at the end of the four weeks.

Third Period.

During the third period of four weeks the ration was:—

	Lb.
Corn ensilage.....	40
Hay.....	20
Bran.....	2
Chopped pease.....	2
Oil-cake.....	2
Cotton-seed meal.....	2
	<hr/>
	68
	<hr/>

Of that mixture each cow consumed an average of 53·6 lb. per day, which contained 6·3 lb. of the meal mixture—bran, chopped pease, oil-cake and cotton-seed meal.

The cost per day was 16·4 cents per cow.

The average quantity of milk was 21·7 lb. per cow per day.

The animals weighed an average of 1,234 lb. each at the end of the four weeks

The extended explanations which have been given in presenting the facts of feeding the cows of Lot 1, for the three periods of four weeks each, apply to the other lots of cows.

The following Tables present the facts for convenient comparisons:—

TABLE I.—Group I, Lot 1, (Daisy, Pinkie, Blossom).—Three grade Shorthorn cows.

At 23rd March, when the first period of the test began, the average length of time from the commencement of their milking period was 46 days.

Composition of Ration.	Preparatory Period of one week.	First Period of four weeks.	Second Period of four weeks.	Third Period of four weeks.
Corn ensilage..... Lb.	.....	60	90	40
Hay..... “	.....	.....	.....	20
Root (mangels or carrots)..... “	.....	.....	.....	.....
Meal (equal parts by weight of wheat bran, ground pease, oil-cake and cotton-seed meal).. “	.....	8	8	8
.....	.....	68	98	68
(For composition of ration for preparatory period, see page 72).				
Quantity consumed per cow, per day..... Lb.	57·	92·7	95·	53·6
do of meal, per cow, per day..... “	.....	10·9	7·7	6·3
Value of feed consumed, per cow, per day... Cents.	.....	19·37	15·77	16·40
Average quantity of milk, per cow, per day... Lb.	28·3	28·94	26·06	21·74
do percentage of fat in milk..... p.c.	.....	3·52	.....	.....
do live weight per cow at beginning... Lb.	1,175	1,195	1,207	1,200
do do do end..... “	1,195	1,207	1,200	1,234
Value of feed consumed per 100 lb. of milk pro- duced..... Cents.	.....	66·93	60·51	75·43

TABLE II.—Group I, Lot 2 (Blue-Bell, Buttercup, Pansy).—Three grade Shorthorn cows. At 23rd March, when the first period of the test began, the average length of time from the commencement of their milking period was 45 days.

Composition of Ration.	Preparatory Period of one week.	First Period of four weeks.	Second Period of four weeks.	Third Period of four weeks.
Corn ensilage..... Lb.	.....	30	40	90
Hay . . . . . “	.....	15	20	.....
Roots (mangels or carrots)..... “	.....	.....	.....	.....
Meal (equal parts by weight of wheat, bran, ground pease, oil-cake and cotton-seed meal.) “	.....	8	8	8
		53	68	98
(For composition of ration for preparatory period, see page 72.)				
Quantity consumed per cow, per day..... “	57	68	53	90
do meal per cow, per day..... “	.....	10·2	6·2	7·3
Value of feed consumed per cow, per day Cents.	.....	23·19	16·22	14·94
Average quantity of milk per cow, per day “	26·8	28·47	27·1	23·87
do percentage of fat in milk..... p.c.	.....	3·50	.....	.....
do live weight per cow at beginning..... Lb.	1,211	1,214	1,247	1,250
do do end..... “	1,214	1,247	1,250	1,249
Value of feed consumed per 100 lb. of milk pro- duced Cents.	.....	81·45	59·85	62·58

TABLE III.—Group II, Lot 3 (Barberry, Clenna Rex, Countess).—Two Jersey and one Ayrshire cows. At 23rd March, when the first period of the test began, the average length of time from the commencement of their milking period was 151 days.

Composition of Ration.	Preparatory Period of one week.	First Period of four weeks.	Second Period of four weeks.	Third Period of four weeks.
Corn ensilage..... Lb.	60	90	90	
Hay..... “				
Roots (mangels or carrots)..... “				
Meal (equal parts by weight of wheat bran, ground pease, oil-cake and cotton-seed meal).. “		4	8	
	60	94	98	
(For composition of ration for preparatory period, see page 72.)				
Quantity consumed per cow, per day..... “	44	60	66.3	65
do of meal per cow, per day..... “			2.9	5.3
Value of feed consumed per cow, per day..... Cents.		4.2	7.95	10.79
Average quantity of milk per cow, per day..... Lb.	13.9	10.75	11.32	12.58
do percentage of fat in milk..... p.c.		4.65		
do live weight per cow at beginning..... Lb.	856	854	827	812
do do end..... “	854	827	812	856
Value of feed consumed for 100 lb. of milk pro- duced..... Cents.		39.06	70.22	85.77

TABLE IV.—Group II, Lot 4 (Maggie B., Clenna Rex II).—One Ayrshire and one Jersey cow. (The other Jersey cow was taken sick and was dropped out.) At 23rd March, when the first period of the test began, the average length of time from the commencement of their milking period was 172 days.

Composition of Ration.	Preparatory Period of one week.	First Period of four weeks.	Second Period of four weeks.	Third Period of four weeks.
Corn ensilage..... Lb.	.....	60	90	90
Hay... .. “	.....	.....	.....	.....
Roots (mangels or carrots)..... “	.....	.....	.....	.....
Meal (equal parts by weight of wheat bran, ground pease, oil-cake and cotton-seed meal).. “	.....	8	8	4
.....	.....	68	98	94
(For composition of ration for preparatory period, see page 72.)				
Quantity consumed per cow, per day..... “	47	74·5	70·8	66·7
do of meal per cow, per day..... “	.....	8·7	5·7	2·8
Value of feed consumed per cow, per day..... Cents.	.....	15·57	11·75	8
Average quantity of milk per cow, per day.... Lb.	17·6	18·18	18·49	14·12
do percentage of fat in milk..... p.c.	.....	4·58	.....	.....
do live weight per cow at beginning..... Lb.	846	833	869	881
do do at end “	833	869	881	898
Value of feed consumed per 100 lb. of milk produced.. .. Cents.	.....	85·64	63·54	56·62

TABLE V.—Group III, Lot 5 (Dorinda II, Dorinda III, Aaggie's Cornelia). Three Holstein cows. At 23rd March, when the first period of the test began, the average length of time from the commencement of their milking period, was 150 days.

Composition of Ration.	Preparatory Period of one week.	First Period of four weeks.	Second Period of four weeks.	Third Period of four weeks.
Corn ensilage..... Lb.	.....	40	100	.....
Hay..... “	.....	.....	.....	40
Roots (mangels or carrots)..... “	.....	30	30	30
Meal (equal parts by weight of wheat bran, ground pease, barley, oil-cake and cotton-seed meal)..... “	.....	10	10	10
	.....	80	140	80
(For composition of ration for preparatory period, see page 72.)				
Quantity consumed per cow, per day..... Lb.	54	134·6	122·3	48·3
Quantity of meal per cow, per day..... “	.....	16·8	8·7	6·0
Value of feed consumed per cow, per day..... Cents.	.....	34·99	21·89	20·53
Average quantity of milk per cow, per day..... Lb.	28·6	31·76	29·30	25·12
do percentage of fat in milk..... p.c.	.....	3·56	.....	.....
do live weight per cow at beginning . . . Lb.	1,175	1,094	1,255	1,220
do do at end. “	1,094	1,255	1,220	1,204
Value of feed consumed per 100 lb. of milk produced..... Cents.	.....	110·17	74·70	81·72

TABLE VI.—Group III., Lot 6 (Miss Elgins, Fashion Book, Cherry Constance).
Three Shorthorn cows. At 23rd March, when the first period of the test began, the average length of time from the commencement of their milking period was 121 days.

Composition of Ration.	Preparatory Period of one week.	First Period of four weeks.	Second Period of four weeks.	Third Period of four weeks.
Corn ensilage Lb.	.....	.....	.....	100
Hay ..... “	.....	20	40	.....
Roots (mangels or carrots) ..... “	.....	30	30	30
Meal (equal parts by weight of wheat bran, ground pease, barley, oil-cake and cotton-seed meal). ..... “	.....	10	10	10
.....	.....	60	80	140
(For composition of ration for preparatory period, see page 72.)				
Quantity consumed per cow, per day..... “	57	67·2	46·6	101
Quantity of meal per cow, per day ..... “	.....	11·2	5·8	7·2
Value of feed consumed per cow, per day..... Cents.	.....	29·1	19·8	18
Average quantity of milk per cow, per day..... Lb.	23·5	25·63	20·76	18·14
do percentage of fat in milk p.c.	.....	3·75	.....	.....
do live weight per cow at beginning..... Lb.	1,300	1,295	1,342	1,342
do do at end.. .. “	1,295	1,342	1,342	1,290
Value of feed consumed per 100 lb. of milk produced..... Cents.	.....	113·53	95·37	99·22

The teaching of the experiment points to the economy of:—

- (1) Providing for milking cows a ration of succulent quality;
- (2) Feeding as large a quantity of the feed as the animals will eat up clean; and
- (3) Making the ration of such a gross and bulky composition that not more than from 6 to 8 pounds of meal—the concentrated and expensive part of the feed—will be consumed by the ordinary cow per day.

Corn ensilage of such quality as came from our silos was not in itself a complete or suitable feed for milking cows. During the period when it was fed alone the hair of the cows seemed dry, there was an absence of thrifty appearance, and the yield of milk fell off in the first period of four weeks by 22·6 per cent. There was an average gain in the yield of milk during the first period of four weeks, from the cows in each of the other five lots, of 6·5 per cent.

Feeding Mangels vs. Sugar-beets for a Short Period.

An experiment to last for three weeks was undertaken on 7th December, to discover if any immediate and perceptible influence on the quantity and quality of the milk resulted from feeding sugar-beets in a ration, in place of mangels.

Twenty-three milking cows were in three groups, according to their periods of lactation, for the experimental dairy tests reported upon in Tables V to X of the dairy experiments recorded in Part III of this report.

The ration fed from 7th to 13th December was composed of:—

	Lb.
Corn ensilage	40
Mangels	35
Straw	5
Meal (barley, pease, oats)	5
	<hr/> 85 <hr/>

The ration fed from 14th to 27th December was composed of:—

	Lb.
Corn ensilage ..	40
Sugar beets.....	35
Straw ...	5
Meal (barley, pease, oats).....	5
	<hr/> 85 <hr/>

The milk was carefully weighed, the specific gravity was taken by the lacto-densimeter, and the percentage of fat was ascertained by the Babcock milk tester. The following Table shows the average results:—

TABLE VII.

	From Mangels.		From Sugar Beets.	
	Morning Milk.	Evening Milk.	Morning Milk.	Evening Milk.
Average quantity of milk Lb.	8.29	6.48	7.72	5.42
do specific gravity.....	1,033.08	1,032.91	1,033.27	1,033.54
do per cent of fat in milk..... p.c.	4.13	4.76	4.16	4.75

This experiment does not indicate that there was any appreciable difference in the quantity or richness of the milk, due to the substitution of sugar-beets for mangels. An examination of the butter which was made revealed the fact that the butter made during the period when sugar-beets were fed had a firmer body and a finer flavour than that which was made during the period when mangels were being fed.

Feeding Calves.

Very many enquiries have come to the office by mail, asking for information and advice on the feeding and raising of calves for the dairy. At my suggestion one of my assistants in the Dairy Commissioner's branch, Mr. J. W. Hart, prepared the following short article on that subject. Mr. Hart has proven by his work that he has special aptitude and ability in the care of dairy stock; and I consider the matters of advice contained in his article to be so much to the point, and capable of so much service to the stock-raisers of Canada, that I introduce it here in his own bright language.

(Written by J. W. Hart).

A knowledge of the principles which underlie the science of feeding will materially aid any one who essays to raise dairy stock; and no class of stock upon the farm will more fully respond to judicious, intelligent and generous treatment than will the calves. No saving can be effected by stinting calves in their feed. The man who starves his young stock through greed of gain, and in accordance with his false notions of economy, is not a capable stock-raiser or feeder. Aside from a humanitarian standpoint, what shall it profit a man if he feed a calf twelve months to attain a weight that could have been laid on in one-half the time? A stunted, dejected-looking calf, and the loss of the food necessary to maintain its miserable existence for six months is the ordinary result. Nor is this all. If the calf be raised for the dairy it will seldom outlive the effects of its early treatment. The difference between what such a cow is, and what she might have been—extending over a period of years, and to her offspring—will keep hundreds of dollars out of the stock-raiser's pocket.

The feeding of a calf commences before the calf is dropped. Before calving, the cow should be fed liberally with suitable food, that the calf may be strong and vigorous, and the flow of milk large.

"Milk is the natural food of the young of all mammalia." But, except in a few instances (and they are rarer than many of our breeders of thoroughbred stock suppose), milk—the model and perfect food—is too expensive a diet for the calves. Therefore, some owners of cows knock the calves on the head; but others prefer to raise them. The object of this article is to show how this may be accomplished with profit. I would not advise any one to raise all the calves dropped in his herd. It matters not how excellent the herd may be, there will be some weakly calves, and calves from the poorest milkers, that cannot be raised with profit or advantage.

Milk being a perfect food, supplying all the elements necessary for the growth of bone, muscle, nerve and sinew, for repairing waste and maintaining the animal heat, "it must follow as the night the day," that the more closely we can get our substitutes to resemble milk, in character and composition, the more rational and correspondingly successful will our practice be. The following is an average of a number of analyses of milk:—

Water.....	87·25	per cent.
Fat.....	3·50	do
Albuminoids.....	3·90	do
Sugar.....	4·60	do
Ash.....	·75	do

In this article I shall not attempt a description of these constituents and their functions in the animal economy. If the fat be taken from the milk in the form of butter it should be replaced by a cheaper food, rich in fat. Flax-seed is such a food, and its mucilaginous character when cooked specially adapts it to the tender mucous coat of the alimentary tract of the young animal. If flax-seed be difficult to obtain, linseed-meal, oatmeal, pease-meal or cotton-seed meal may be used. If whey be used as the basis of a ration, it should be fed sweet. Owing to its watery character, more grain should be fed with it than with skim-milk. Whatever meal is fed in milk or whey should be cooked.

I think it best to let the calf get its fill two or three times from the dam in nature's own way. Then feed it twice a day on whole milk, warm from the cow, until it is a week old. A gallon at a feed will be as much as an ordinary calf can assimilate. To teach a calf to drink, back it into a corner, get astride of its neck, and set the pail containing the milk down in front of it; place the first two fingers of the right hand in its mouth, keeping the palm of the hand over its nose. As soon as the calf commences to suck, lower its nose into the pail of milk; the calf will continue to suck, drawing the milk through the canal formed by the fingers; gently remove the fingers, keeping the calf's nose—not its nostrils—below the surface. If it keeps on drinking, the victory is won; but if objecting to this—to it unnatural

treatment—it ducks its head to the bottom of the pail and jerks it up again, spouting the milk all over you, don't swear and maul the innocent little stranger with a milking stool. Two or three lessons will usually be successful in teaching the most obstinate calf to drink. It becomes more difficult to teach calves to drink as they get older, but it can be done by persistence, patience and gentleness. After the first week, one-half of the new milk may be replaced by sweet skim-milk, with the addition of half a teacupful of flax-seed jelly. Instead of flax-seed, oil-cake, oil-meal, oat-meal, middlings or pease-meal may be fed—the last named sparingly, as it is constipating in tendency. The flax-seed may be gradually increased to half a pound a day for a calf of three months. Keep some clean, bright hay and chopped grain where the calf can reach it, and it will soon learn to eat. Don't be afraid that it will eat too much of these things.

In feeding calves there is a danger that the milk will be swallowed too rapidly, and thus produce indigestion and scouring. For young calves a nipple is often used, which obviates that difficulty. Half a teaspoonful of rennet-extract in the milk will correct the tendency to scours, and will prove an excellent promoter of digestion. If scouring be noticed, don't dose the calf with powerful astringents, but decrease the ration of milk, and to it add a teacupful of boiled flour.

Where two or more calves are fed together, keep them tied up while feeding, and for a short time afterwards, so that they cannot suck each other.

Feed regularly twice or three times a day, and have the milk at blood heat. Never feed cold milk to a young calf. It is better that the same person should attend the calves regularly.

Calves should be allowed access to pure water and salt. Don't miss the effects of good feeding, by allowing them to suffer for these prime necessities.

After the calf is four months old, if milk be scarce, gradually lessen the quantity fed, until at the age of six or seven months it may be dispensed with entirely.

Exercise is beneficial, especially to calves intended for the dairy. The run of a grass plot should be given where convenient. The calf pen should be kept dry and clean.

Study the nature of the animal; respect its preferences; anticipate its wants; treat it kindly; be a watchful, intelligent feeder; and verily thou shalt not fail to raise good calves.

PART II.—SWINE.

Of thoroughbred swine there were purchased during the year:

Berkshire.

One boar, from Mr. Thomas Teasdale, Concord, Ont.

Tamworths.

One boar and one sow, from Messrs. J. L. Grant & Co., Ingersoll, Ont.

Poland Chinas.

Two sows (pure bred, but not now eligible for registration), from Messrs. W. M. & J. C. Smith, Fairfield Plains, Ont.

A number of grade pigs were purchased, with which to carry on experiments, of which some are still in progress.

Provision has been made for crossing some of the longer and leaner breeds, such as the Improved Large Yorkshires and Tamworths, on the shorter and more hardy breeds, such as the Essex, Berkshire, &c. The ultimate object will be to discover what cross or pure-bred swine will give the largest yield in weight, and the best quality of meat for every pound of feed consumed. A few feeding tests for a comparison of the cross-bred pigs are in progress at this writing.

EXPERIMENTS IN THE FATTENING OF SWINE.

In November, 1890, 24 grade pigs were purchased. Eight of them were white, and apparently grades of Chester whites; 16 of them were nearly all black, and were evidently grades of Berkshires. They were divided into six lots of four pigs in each.

THE EIGHT WHITE PIGS were put into pens Nos. 1 and 2, and the two lots of four each were, as nearly as possible, alike in weight and appearance. Both lots were fed on a mixture of grain, consisting of equal parts of ground pease, barley and rye. The object of this experiment was two-fold—(1) to discover the difference, if any, in the quantity of grain required to produce every pound of increase in the live weight of the swine, when *fed steamed and warmed* in the one case, and when *fed raw and cold* in the other case; (2) to obtain a record of the comparative quantities of grain required to produce every pound of increase in the live weight of the swine, during the different stages of the feeding period.

The mixture of grain was fed wet in both cases. Cold water was given to drink. A mixture of salt and wood ashes was kept in a box on the floor of each pen, where the pigs had access to it at will. The feed was weighed every day, and the swine once every week. In the following Table the feeding period has been arranged into five periods of four weeks each, and one period of three weeks. It shows the gain in weight and the quantities of grain consumed.

TABLE I.

	9th December.	5th January.	2nd February.	2nd March.	30th March.	27th April.	18th May.	Totals.
	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.
<i>Pen 1—Four Swine—</i>								
Fed on a mixture of ground pease, barley and rye, <i>fed steamed and warmed</i> :								
Live weight.....	302	407	614	808	917	974½	745*	.....*Three swine only.
Gain in weight.....		105	207	194	109	57½	30	702½ gain in weight.
Feed consumed.....		348	637	736	545	406	256	2,928 grain consumed.
Feed consumed per lb. gain in live weight.....								4·16 grain.
<i>Pen 2—Four Swine—</i>								
Fed on a mixture of ground pease, barley and rye, <i>fed raw and cold</i> :								
Live weight.....	308	413½	597	723	781½	830½	872	.....
Gain in weight.....		105½	183½	126	58½	49	41½	564 gain in weight.
Feed consumed.....		348	563	558	413½	278½	237	2,398 grain consumed.
Feed consumed per lb. gain in live weight.....								4·25 grain.
<i>Pens 1 and 2—</i>								
Average feed consumed per lb. of gain in live weight.....	3·31	3·07	4·04	5·73	6·45	6·93		
Percentage of increase in feed consumed per lb. of gain in live weight.....				31%	86%	110%	125%	

(1). RESULTS :—Taking in the whole period, extending from 9th December to 18th May, 4·16 pounds of the mixture of grain, ground pease, barley and rye, were consumed for every pound of increase in the live weight, when fed steamed and warm, against 4·25 pounds of the grain when fed raw and cold.

(2). The swine, on the steamed and warm feed, gained $702\frac{1}{2}$ pounds in liveweight, against 564 pounds of gain by the swine on the raw and cold feed; but the former consumed 2,928 pounds of grain, as against 2,398 pounds of grain consumed by the latter. That indicates that when feed was provided, steamed and warm, the swine consumed larger quantities of it than when fed raw and cold; they also gained faster in weight, but every pound of increase in weight cost practically as much in grain in the one case as in the other. There was nothing to compensate for the labour and expense of the steaming.

(3). There was a marked and gradual increase in the quantity of grain consumed per pound of gain in live weight, after the second month of the feeding. That will be presented again in another Table.

EIGHT OF THE BLACK PIGS were put into Pens Nos. 3 and 4. The pigs in Pen 3 were as nearly as possible similar in weight and appearance to those in Pen 4.

In this experiment, the object was to discover the value, if any, of clover ensilage for the feeding and fattening of swine of an average weight of 64 pounds each.

Records were also kept, to ascertain the comparative quantities of feed required to produce every pound of increase in the live weight of the swine, during the different stages of the feeding period.

The pease ensilage was prepared by harvesting the crop when the earliest pods were filled and before the pease became hard. The vines were green and succulent. The ensilage was well preserved. The pigs in Pen 3 were fed an allowance of grain, a mixture of equal parts of ground pease, barley and rye, but not as much as they would have eaten readily. They were fed also a quantity of pease ensilage. The pigs in Pen 4 were fed upon pease ensilage only. In both cases the pigs refused to eat more than a small portion of whatever quantity of pease ensilage was offered to them. The remainder was nosed over, pushed about and tramped on. When what was left uneaten was weighed out of the pens it was very wet.

Both lots of pigs were allowed cold water to drink, and a mixture of salt and ashes was accessible to the pigs in both pens. The pease ensilage did not seem to have any feeding value to the pigs which received an allowance of grain; and the pigs in Pen 4 steadily decreased in weight for nine weeks, when the feeding of ensilage was ended.

The following Table contains the details of the weights of pigs, feed consumed, and rate of gain in live weight:—

TABLE II.

	29th December.	5th January.	2nd February.	2nd March.	30th March.	27th April.	18th May.	Totals.
<i>Pen 3—Four Swine—</i>								
Fed on a mixture of ground pease, barley and rye, fed steamed and warmed, and pease ensilage—	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.
Live weight	254	267	414	*379	442	494	548	*Three swine only.
Gain in weight.....		13	147	74	63	52	54	403 gain in weight.
Feed consumed { Grain		63	474	335	287	260	243	1,662 grain consumed.
{ Pease ensilage.....		112½	682	345				
Pease ensilage left uneaten (wet).....		100	625	319				
Grain consumed per lb. of gain in live weight.....								4·12 grain.
<i>Pen 4—Four Swine—</i>								
Fed on pease ensilage only until 2nd March—								
Live weight	256	237	223	205				
Loss in weight.		19	14	18				51 loss in weight.
Pease ensilage fed.....		235	1401	2127				
do left uneaten (wet).		150	938	1409				
After 2nd March, fed on a mixture of ground pease, barley and rye, fed raw and cold—								
Live weight.....				205	395½	512½	571	
Gain in weight.....					190½	117	58½	366 gain in weight.
Feed consumed					443	388	327	1,158 grain consumed.
do per lb. of gain in live weight.....					2·32	3·31	5·59	3·16 grain.
<i>Pens 3 and 4—</i>								
Average feed consumed per lb. of gain in live weight.....		4·84	3·22	4·52	2·88	3·83	5·06	

THE OTHER EIGHT BLACK PIGS—Berkshire grades—were put into Pens Nos. 5 and 6, and the two lots were as nearly similar in appearance and weight as possible. The objects of this experiment were the same as those in the experiment with the swine in Pens 1 and 2. The method of conducting it was similar, with the difference of sugar beets being fed to the swine in both pens, with the grain mixture.

Table III shows the weights of the swine, the gains in weight, and the quantities of feed consumed.

TABLE III.

	9th December.	5th January.	2nd February.	2nd March.	30th March.	27th April.	18th May.	Totals.
<i>Pen 5—Four Swine—</i>	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	
Fed on a mixture of ground pease, barley and rye, fed steamed and warmed, and sugar beets—								
Live weight.....	187	258	425	581	669	744½	812	
Gain in weight.....		71	167	156	88	75½	67½	625 gain in weight.
Feed consumed { Grain.....	333	412	540	475	369	282		2,411 grain consumed.
{ Sugar beets.....	44½	330	313	320	308	224		1,538 sugar beets consumed.
Feed consumed per lb. of gain in live weight.....								{ 3·86 grain. 2·46 sugar beets.
<i>Pen 6—Four Swine—</i>								
Fed on a mixture of ground pease, barley and rye, fed raw and cold, and sugar beets—								
Live weight.....	201	272	415	547	692	731	772	
Gain in weight.....		71	143	132	145	39	41	571 gain in weight.
Feed consumed { Grain.....	225	396	503	458	371	270		2,223 grain consumed.
{ Sugar beets.....	60	320	307	310	322	244		1,563 sugar beets consumed.
Feed consumed per lb. of gain in live weight.....								{ 3·89 grain. 2·73 sugar beets.
<i>Pens 5 and 6—</i>								
Average feed consumed per lb. of gain in live weight.....								
{ Grain.....	3·93	2·61	3·62	4·00	6·50	4·33		
{ Sugar beets.....	0·72	2·10	2·15	2·73	5·52	5·11		
*Percentage of increase in feed consumed per lb. of gain in live weight.....				21 per ct.	90 per ct.			
*1 lb. grain equal to 5 lb. sugar beets..								

The following Table shows the quantities of feed consumed per pound of gain in live weight, during each of the six feeding periods. The duration of each feeding period was four weeks, with the exception of the first period for Pens 4 and 5, and the last period for all the Pens, which was three weeks. The grain fed in each case was a mixture of equal parts of ground pease, barley and rye. No notice is taken in this Table of the pease ensilage fed to Pens 4 and 5, as it did not appear to have any appreciable feeding value in these cases.

TABLE IV.—Pounds of Feed consumed per pound of gain in the live weight of swine.

Feeding Periods.	Pen 1, 4 Swine; Grain, Fed Steamed and Warm.	Pen 2, 4 Swine; Grain, Fed Raw and Cold.	Pen 3, 4 Swine; Grain, Fed Steamed and Warm.	Pen 4, 4 Swine; Grain, Fed Raw and Cold.	Pen 5, 4 Swine; Grain, Fed Steamed and Warm, and Sugar Beets.		Pen 6, 4 Swine; Grain, Fed Raw and Cold, and Sugar Beets.	
	Grain, Lb.	Grain, Lb.	Grain, Lb.	Grain, Lb.	Grain, Lb.	Sugar Beets, Lb.	Grain, Lb.	Sugar Beets, Lb.
First	3·31	3·30	4·84	.....	4·69	0·61	3·17	0·84
Second.....	3·07	3·07	3·22	.....	2·46	2·00	2·76	2·23
Third	3·79	4·43	4·52	.....	3·46	2·00	3·81	2·32
Fourth.....	5·00	7·07	4·55	2·32	5·40	3·63	3·15	2·13
Fifth.....	7·06	5·68	5·00	3·31	4·88	4·08	9·51	8·25
Sixth.....	8·53	5·71	4·50	5·59	4·17	3·31	6·58	6·00
Average	4·16	4·25	4·12	3·16	3·86	2·46	3·89	2·73

CONCLUSIONS.—The teaching of these three sets of experiments is to the effect that:—

(1.) There is no appreciable difference in the number of pounds of grain required to produce every pound of increase in the live weight of swine, when fed steamed and warm, as against fed raw and cold;

(2.) On the average there is a gradual increase in the quantity of feed consumed, for every pound of gain in live weight of swine, after the second month of their feeding period and after the average live weight exceeds 100 lb.;

(3.) It is economical to market swine for slaughtering when they weigh from 180 to 200 lb. alive;

(4.) The *largest* consumption of feed per day by swine is at or near the period of their feeding, when the number of pounds of feed consumed, per pound of increase in weight, is *lowest*;

(5.) For the increase of weight by 3,231½ lb. in 24 swine, 4·14 lb. of a mixture of ground pease, barley and rye were required for every pound of increase in live weight.

Several series of feeding tests are in progress, mainly for the purpose of determining the relative values of (1) ground grain and whole grain; (2) of grain and skim milk; and (3) of frozen wheat from Manitoba and North-West Territories. At this writing, the quantity of ground frozen wheat consumed per pound of increase in live weight has been 5·30 lb., with swine weighing from 185 lb. to 275 lb. live weight each, and 3·93 lb. of ground frozen wheat per pound of increase in live weight with swine weighing from 70 lb. to 105 lb. each.

PART III.—EXPERIMENTAL DAIRY WORK.

The experimental dairy building on the farm, which was described in the annual report for 1890, was completed early in 1891. A cut of it appears underneath.

The machinery and apparatus are adequate for the present needs of the farm, and enable us to carry on investigations which are considered to be capable of rendering the most immediate and practicable service to the dairymen of the country.

An 8 h. p. boiler and 6 h. p. steam engine were purchased from Mr. Geo. Low, of Ottawa, who also fitted up the steam pipes and shafting throughout the building.

A hand-power centrifugal cream separator, manufactured by Burmeister & Wain, of Copenhagen;

A No. 4 "Alexandra" centrifugal cream separator, and a No. 8 "Alexandra" centrifugal cream separator for operation by hand-power, manufactured by R. A. Lister & Co., Dursley, England;

One No. 5 Daisy revolving barrel churn of fourteen gallons' capacity, and two No. 2 Daisy churns of four gallons capacity each;

A Boyd cream ripening vat, and fermentation starter vat;

A lever butter worker for hand use;

Several Babcock milk-testers;

Two pairs of weighing scales; and the usual outfit of small dairy utensils, such as deep-setting milk pails, 20" x 8½" diam., shallow milk pans, strainer, skimmer, butter printer, thermometers, water pails, hot water and cold water tanks, washing sink, brushes, etc., furnish the dairy with conveniences for carrying on its work.

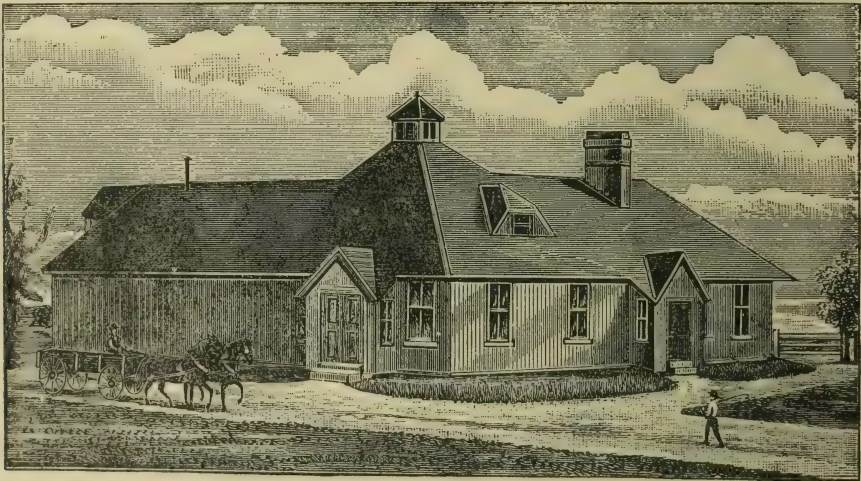


FIG. IV.—Dairy Building, Central Experimental Farm.

Besides these, there are several tables, and a milk-setting tank which merits particular description for the information of farmers. The tank is constructed of 2-inch pine lumber; its length is 7 ft. 6 in.; its width 2 feet, and its depth 2 feet. These are inside measurements. It is divided into four compartments, each 21 x 24 x 24 inches. That size gives sufficient space for the setting of four deep-setting milk pails in each. Cold water is led into each compartment by means of a pipe which runs down to within 1 inch from the bottom. The overflow of water—when it has been slightly warmed by contact with the milk-pails—is carried off by a pipe at its surface. Where the supply of cold water is limited, this method of leading the cold water to *near the bottom of the tank*, and conducting the water which has been warmed from the surface to the overflow pipe or drain, will enable the cooling power of the water to be used most economically. The overflow water may be in excellent condition for the watering of stock, where and when water for both purposes is scarce.

PARTICULARS OF EXPERIMENTS.

In the course of the experimental work of the year a great mass of valuable data has been accumulated in the records. As far as experiments have been completed, or even advanced sufficiently to furnish useful guidance for dairymen in their practice, they will be reported upon. The tests for comparison between the centrifugal cream separators and the setting methods are not ready to be reported on in full, as it is considered desirable to make a record of the results which are found during every month of the year before any definite conclusion is announced.

Instead of burdening the pages of the report with the details of single tests only, a statement of the average results of from 4 to 12 tests will be presented in most of the different experiments. Our herd of milking cows contains animals of seven different breeds, beside grade milch cows. When not otherwise specified, the milk used in the experiment was mixed herd milk.

Experiments in Deep-setting of Milk at different Temperatures.

The test was conducted for six days—28th May to 4th June—and included six settings of morning milk and six settings of evening milk in each case. The whole quantity of milk used was herd milk, and was thoroughly mixed in a large vessel before it was divided into three lots. The setting period was 22 hours. Table I shows the average results from the 12 tests:—

TABLE I.

Temperature of Milk when set.	98° Fahr.	88° Fahr.	78° Fahr.
Quantity of milk set..... .. Lb.	35	35	35
Per cent of butter-fat in milk..... ..	3·48	3·48	3·48
Temperature of water..... .. Fahr.	49°	49°	49°
Quantity of skim-milk..... .. Lb.	29·6	29·8	30·25
Per cent of butter-fat in skim-milk..... ..	0·62	0·64	0·71
Quantity of fat in whole milk..... .. Lb.	1·22	1·22	1·22
do left in skim-milk..... .. “	0·183	0·190	0·214
Percentage unrecovered..... ..	15·04	15·63	17·60

This experiment shows that the loss of butter-fat—unrecovered from the skim-milk—was only ·59 of 1 per cent greater, when milk was set 88° Fahr., than when it was set 98° Fahr.; and that the loss of unrecovered butter-fat was 2·53 per cent greater when milk was set at 78° Fahr. than when it was set at 98° Fahr.

Experiment in Immediate vs. Delayed Setting of Milk.

This test was conducted for six days—from 27th July to 2nd August—and included six settings of morning milk and six settings of evening milk in each case. The milk was herd milk, and was mixed immediately after milking, before it was divided into two lots. One lot was set at once in a deep-setting pail, in ice water, of a temperature of 38° Fahr.; another lot was left in a pail in the dairy room for one hour, and was then set in ice water, under conditions precisely similar. The following Table shows the average results from the morning and evening tests:—

TABLE II.

	Morning Milk.		Evening Milk.	
	Immediate setting.	Delayed one hour.	Immediate setting.	Delayed one hour.
Quantity of milk set. Lb.	35	35	35	35
Per cent of butter-fat in milk.	3·53	3·53	3·93	3·93
Temperature when set .....Fahr.	98°	88°	98°	88°
Per cent of butter-fat in skim-milk.....	·48	·96	·65	1·20
Highest per cent of butter-fat in skim-milk.....	·9	1·2	·9	1·8
Lowest do do do do	·4	·75	·4	·7
Setting period in hours.	22	21	22	21
Quantity of fat in whole milk. Lb.	1·23	1·23	1·37	1·37
do left in skim-milk..... “	0·139	0·278	0·188	0·348
Percentage unrecovered.	11·31	22·63	13·76	25·40

This experiment shows that the loss of unrecovered butter-fat—which was left in the skim-milk—was 11·48 per cent greater, when the setting of milk in deep-setting pails in ice water was delayed one hour, than it was when the milk was set immediately.

Experiment in Deep-setting of Milk for 11 Hours vs. 22 Hours.

This test was continued for six days—from 12th August to 18th August—and comprised six settings of morning milk and six settings of evening milk in each case. The milk was mixed herd milk, and was set immediately after it reached the dairy building in deep-setting pails, in ice water of a temperature of 38° to 40° Fahr.

Table III shows the average results from the 24 settings of milk.

TABLE III.

Setting Period...	Morning Milk.		Evening Milk.	
	11 Hours.	22 Hours.	11 Hours.	22 Hours.
Quantity of milk set. Lb.	35	35	35	35
Per cent of butter-fat in milk	3·61	3·61	4·27	4·27
Temperature when set .....Fahr.	96°	96°	95°	94°
Per cent of butter-fat in skim-milk.. . .	·98	·55	·97	·65
Highest per cent of butter-fat in skim-milk.....	1·4	·8	1·6	·8
Lowest do do do do	·7	·3	·8	·4
Quantity of fat in whole milk. Lb.	1·26	1·26	1·49	1·49
do left in skim-milk..... “	0·284	0·159	0·281	0·188
Percentage unrecovered.	22·55	12·65	18·87	12·65

This experiment shows that the loss of unrecovered butter-fat was 9·9 per cent greater for the morning milk, and 6·22 per cent greater for the evening milk, when the milk was set in deep pails for 11 hours, than it was when the milk was set for 22 hours.

Experiment on the effect of adding Water to Milk in Deep-setting.

The test was carried on for six days—from 24th September to 1st October—and included six settings of morning milk and six settings of evening milk, or 36 settings in all. The milk used was herd milk, and was mixed in one vessel, before any difference of treatment was given. To one lot, 25 per cent of water at a temperature of 160° Fahr. was added; to another lot, 25 per cent of water at a temperature of 60° Fahr. was added; and the third lot was set under similar conditions with the others, and without the addition of any water.

The following Table shows the average results from 12 settings in each case; the setting period was 22 hours:—

TABLE IV.

	25 per cent of Water at 160° Fahr. added.	25 per cent of Water at 60° Fahr. added.	No Water added.
Quantity of milk set..... Lb.	25	25	35
Percentage of butter-fat in milk.....	3·52	3·52	3·52
Temperature of milk when mixed.....Fahr.	92°	92°	92°
do milk when set.....	110°	82°	92°
do water in tank.....	38°	38°	38°
Percentage of fat left in skim-milk.....	·63	·60	0·58
Quantity of fat in whole milk..... Lb.	0·88	0·88	1·23
do left in skim-milk..... “	0·130	0·124	0·168
Percentage unrecovered.....	14·82	14·11	13·67

This experiment shows that there was practically no appreciable difference (1·15 per cent) between the percentages of unrecovered fat left in the skim-milk, when 25 per cent of water at 160° Fahr., 25 per cent of water at 60° Fahr., and no water added, were the differences of treatment in the setting of milk, in deep-setting pails in ice water.

Four Experiments in the Creaming of Milk from Cows at different stages of Lactation, by the Deep-setting method.

For these tests, which were conducted in November, the cows of the herd were divided into three groups, according to the length of time during which they had been milking since the last calving.

Group I contained the cows which had been milking for periods ranging from 8 to 11 months, and was made up of 1 Shorthorn, 1 Shorthorn grade, 2 Jerseys, 1 Holstein, 1 Devon and 1 Quebec Jersey.

Group II contained the cows which had been milking for periods ranging from 5 to 7 months, and was made up of 6 Quebec Jerseys, 2 Shorthorn grades and 1 Devon.

Group III contained the cows which had been milking for periods ranging from 1 to 3 months, and was made up of 3 Ayrshires, 3 Holsteins, 2 Shorthorns, 1 Shorthorn grade and 1 Polled Angus.

The setting period in all cases was 22 hours.

THE FIRST EXPERIMENT was conducted for five days. The milk was set in cold water, in which no ice was used, of a temperature of 47° Fahr.

Table V shows the average results from five tests of the setting of morning milk and five tests of the setting from evening milk of each group, or 30 settings in all :—

TABLE V.

	GROUP I.		GROUP II.		GROUP III.	
	Morning Milk.	Evening Milk.	Morning Milk.	Evening Milk.	Morning Milk.	Evening Milk.
Quantity of milk set. .... .Lb.	33	31	34	30	35	35
Per cent of butter-fat in whole milk. . .	3·86	4·26	3·80	4·17	2·86	3·6
Temperature when set .... .Fahr.	87°	88°	89°	87°	91°	91°
Per cent of butter-fat left in skim-milk..	1·14	1·55	1·84	1·5	·65	1·13
Quantity of fat in whole milk. .... .Lb.	1·27	1·32	1·29	1·25	1·00	1·26
do left in skim-milk. “	0·311	0·398	0·518	0·372	0·188	0·327
Percentage unrecovered.	24·54	30·15	40·18	29·82	18·85	26·00

THE SECOND EXPERIMENT in this series was continued for four days. The milk was set immediately after it reached the dairy building from the stables, in ice water, which was maintained at a temperature of 38° Fahr.

Table VI shows the results from the four settings of morning milk and the four settings of evening milk, from each group, or 24 settings in all :—

TABLE VI.

	GROUP I.		GROUP II.		GROUP III.	
	Morning Milk.	Evening Milk.	Morning Milk.	Evening Milk.	Morning Milk.	Evening Milk.
Quantity of milk set. .... .Lb.	35	27	35	31	35	34
Per cent of butter-fat in whole milk.	3·95	4·42	3·9	4·17	2·8	3·15
Temperature when set .... .Fahr.	89°	92°	92°	94°	93°	95°
Per cent of fat left in skim-milk.	1·2	1·7	1·05	1·05	·45	·55
Quantity of fat in whole milk. .... .Lb.	1·38	1·19	1·36	1·29	0·98	1·07
do left in skim-milk. “	0·348	0·380	0·304	0·269	0·130	0·154
Percentage unrecovered.	25·22	31·95	22·39	20·85	13·26	14·48

THE THIRD EXPERIMENT in the series lasted for four days. The milk was re-heated to 98° Fahr. after it reached the dairy building, and was set immediately thereafter in ice water, which was maintained at a temperature of 38° Fahr.

Table VII shows the results from the four settings of morning milk and the four settings of evening milk, from each group, or 24 settings in all :—

TABLE VII.

	GROUP I.		GROUP II.		GROUP III.	
	Morning Milk.	Evening Milk.	Morning Milk.	Evening Milk.	Morning Milk.	Evening Milk.
Quantity of milk set Lb.	32	26	34	31	35	34
Per cent of butter-fat in whole milk. . .	3·71	3·9	3·8	4·2	3·1	3·6
Temperature when set..... Fahr.	98°	98°	98°	98°	98°	98°
Per cent of fat left in skim-milk.....	1·5	1·65	1·15	1·02	·45	·52
Quantity of fat in whole milk. Lb.	1·19	1·01	1·29	1·30	1·08	1·22
do in skim-milk. “	0·397	0·356	0·324	0·308	0·130	0·146
Percentage unrecovered.....	33·40	35·19	25·11	23·70	12·08	12·00

THE FOURTH EXPERIMENT in the series extended over five days. To the milk from Groups I and II, 10 per cent of water was added before it was set; the milk from Group III was delayed in setting for half an hour, then reheated to 98° Fahr., and set immediately afterwards, without the addition of water.

Table VIII shows the results from the five settings of morning milk and the five settings of evening milk from each group, or 30 settings in all :—

TABLE VIII.

	GROUP I.		GROUP II.		GROUP III.	
	Morning Milk.	Evening Milk.	Morning Milk.	Evening Milk.	Morning Milk.	Evening Milk.
Quantity of milk set..... Lb.	33	25	34	31	35	35
Per cent of butter-fat in whole milk. . .	3·70	3·96	3·52	3·8	3·	3·24
do water added.....	10	10	10	10	0	0
Temperature when set..... Fahr.	98°	98°	98°	98°	98°	98°
Per cent of fat in skim-milk.....	1·75	1·40	1·25	1·26	·54	·62
Quantity of fat in whole milk Lb.	1·22	0·99	1·20	1·18	1·05	1·13
do skim-milk. “	0·478	0·290	0·352	0·324	0·156	0·180
Percentage unrecovered.....	39·22	29·29	29·34	27·43	14·91	15·91

The next Table has been arranged to show the relative efficiency of the creaming which resulted from the different treatments of the milk, in each of the four experiments of the series. The comparison between the different treatments requires this explanation: The different treatments were given to the milk of the same cows upon four consecutive weeks. That did not afford a basis, for a comparison of the effects of different setting conditions on milk, as sufficient or as reliable as when different portions of herd milk, from the same cows on the same day, are subjected to different setting conditions for creaming. This experiment provided for treating the milk from the different groups alike on the same days, as the comparison was between the milks of the different groups, and not between the different methods of setting.

Table IX shows the percentage of unrecovered fat, which was left in the skim milk in the case of each of the three groups of cows, during each of the four experiments:—

TABLE IX.

	Group I.	Group II.	Group III.
FIRST EXPERIMENT.—Milk set in water of a temperature of 47° Fahr.....	27·34	35·00	22·42
SECOND EXPERIMENT.—Milk set in ice water of a temperature of 38° Fahr.....	28·58	21·62	13·87
THIRD EXPERIMENT.—Milk re-heated to 98° and set in ice water of a temperature of 38° Fahr..	34·29	24·40	12·04
FOURTH EXPERIMENT.—10 per cent of water added to milk of Groups I and II; milk of Group III delayed half an hour, then re-heated to 98° Fahr.....	34·25	28·38	15·41
Average of four experiments	31·11	27·35	15·93

These four experiments in the setting of milk in deep-setting pails, with 36 setting tests for the milk of each of three groups of cows, show:—

(1.) That 31·11 per cent of the butter-fat was not recovered from the skim-milk, in the case of the group of cows which had been milking for periods of from 8 to 11 months each.

(2.) That 27·35 per cent of the butter-fat was not recovered from the skim-milk, in the case of the group of cows which had been milking for periods of from 5 to 7 months each.

(3.) That 15·93 per cent of the butter-fat was not recovered from the skim-milk, in the case of the group of cows which had been milking for periods of from 1 to 3 months each.

Experiment in Deep-setting, as compared with Shallow-pan Setting, with the Milk from Cows of Groups I and II.

The cows which composed Groups I and II were the same as those described for the series of experiments which have been recorded in Tables V to IX. A portion in each case was set in an ordinary shot-gun, deep-setting pail, of 8½ inches diameter, set in water without ice, of a temperature of 45° Fahr.; another portion of the mixed milk was set in shallow-pans to a depth of 2½ inches.

The milk was set in each case for a period of 22 hours.

The test was continued for five days—8th to 12th December, 1891.

The following Table shows the results:—

TABLE X.

Method of Setting...	GROUP I (Milking 9 to 12 months).				GROUP II (Milking 6 to 8 months).			
	Deep-setting.		Shallow-pan.		Deep-setting.		Shallow-pan.	
	Morn- ing Milk.	Even- ing Milk.	Morn- ing Milk.	Even- ing Milk.	Morn- ing Milk.	Even- ing Milk.	Morn- ing Milk.	Even- ing Milk.
Quantity of milk set..... Lb.	19	.....	8	8	24	24	8	8
Per cent of butter-fat in milk . . .	4·1	.....	4·1	4·8	4·1	4·6	4·1	4·6
Temperature of milk when skimmed.. ..Fahr.	45°	.....	55°	55°	45°	45°	55°.	55°
Quantity of cream obtained...Lb.	3·5	.....	1·5	1·5	4·	4·	1·5	1·5
do of skim-milk. “	15·5	.....	6·5	6·5	20	20	6·5	6·5
Per cent of fat left in skim-milk..	2·1	.....	·27	·21	2·3	2·6	·25	·35
Quantity of fat in whole milk.. Lb.	·779	.....	·328	·384	·984	1·104	·328	·368
do of fat left in skim-milk. “	·325	.....	·017	·014	·460	·520	·016	·022
Percentage unrecovered.. ..	41·72	.....	5·18	3·65	46·75	47 10	4·88	5·98

This experiment shows that the loss of unrecovered butter-fat left in the skim-milk, from the milk of cows at the milking periods of from 6 to 12 months since calving, was 40·27 per cent greater when the milk was set in deep-setting pails, in water at a temperature of 45° Fahr., than when it was set in shallow-pans to a depth of 2½ inches.

During the winter season, as well as during the summer, it seems necessary, in order to obtain efficient creaming by means of deep-setting pails, to use ice-water of a temperature at or below 40° Fahr. That appears to be particularly essential in the setting of milk from cows which have been milking for periods of more than 6 months. To prevent any one from inferring a misleading conclusion from Table X, the following Table has been prepared to show the results from the testing of the mixed milk from the whole herd, for a period of three months. The trials of the different methods of separating the cream, of which the average results appear in Table XI, lasted for one week in every month in each case. The full report of this experiment, which is not yet completed, will appear in the next annual report.

TABLE XI.

	Centrifugal Cream Separator.	Deep-setting in Ice-water at 38°.	Shallow-pan setting to depth of 2½ in.
Per cent of butter-fat in whole milk.....	3·82	3·81	3·82
Quantity of milk per lb. of butter..... Lb.	23·71	25·97	24·91
do butter obtained per lb. of butter-fat in whole milk “	1·104	1·005	1·051

The results of these experiments, and of the series of experiments recorded from Tables V to X, seem to indicate:—

(1.) That by the deep-setting of milk from cows which have been milking for periods of 5 to 12 months in cold water of a temperature of 45° or 48° Fahr., without the use of ice, about 37 per cent of the butter-fat was left in the skim-milk; and by setting in ice water of a temperature of 38° Fahr. about 28 per cent of the butter-fat was left in the skim-milk.

(2.) That during the fall and winter, particularly, the use of shallow-pans for the setting of milk from cows, which have been milking for periods of from 5 to 12 months, will permit the recovery in the cream of about 95 per cent of the butter-fat in the whole milk.

(3.) That the use of the centrifugal cream separator will enable the dairyman to recover practically the whole of the butter-fat into the cream, from the milk of cows at all stages of lactation, and during all seasons of the year.

Experiment in the Setting of Milk in a Cheese-factory Milk-can, 15 inches in diameter, and in a Shot-gun Can, 8½ inches in diameter.

Among the patrons of cheese factories, the practice of using the cheese-factory milk-cans for the setting of milk for cream, after the close of the cheese-factory season, is a common one. A comparison between setting milk in a milk-can 15 inches in diameter and an ordinary shot-gun can 8½ inches in diameter, was made by setting morning milk for three days, and evening milk for three days, between 9th and 14th November. A quantity of herd milk was mixed before it was divided into two portions. It was put into the two cans, to an equal depth—about 19 inches. Both lots were set in ice-water, at 38° Fahr., for 22 hours.

The following Table shows the result:—

TABLE XII.

	Milk-can, 15 inches diameter.		Shot-gun Pail, 8½ inches diameter.	
	Morning Milk.	Evening Milk.	Morning Milk.	Evening Milk.
Quantity of milk in three settings..... Lb.	315	315	105	105
Per cent of butter-fat in milk.....	3·36	3·46	3·36	3·46
do fat left in skim-milk.....	·71	·73	·45	·47
Quantity of fat in whole milk..... Lb.	10·58	10·90	3·53	3·63
do left in skim-milk..... “	1·83	1·88	·39	·40
Percentage unrecovered.....	17·32	17·27	11·05	11·13

This experiment shows that the loss of unrecovered fat—left in the skim-milk—was 6·2 per cent greater, by the use of a milk-can 15 inches in diameter, than by the use of a deep-setting pail 8½ inches in diameter.

Experiments in the Churning of Cream.

The first series of experiments was undertaken to discover what difference, if any, in the product of butter, resulted from the churning of cream obtained by the deep-setting method, from the milk of three groups of cows at different stages of

lactation. The cows which composed the three groups were the same as those described in Tables V to IX, viz. :—

Group I contained cows which had been milking for periods ranging from 8 to 11 months.

Group II contained cows which had been milking for periods ranging from 5 to 7 months.

Group III contained cows which had been milking for periods ranging from 1 to 3 months.

THE FIRST TRIAL was made on 28th November. A portion of the milk of two days was used from the cows of each group.

The milk was set immediately after it reached the dairy building, at a temperature of 96° Fahr., in deep-setting pails, in ice-water of a temperature of 38° Fahr.

The setting period was 22 hours.

In each case 5 per cent of fermentation starter was added, and the cream of the three lots was ripened to as nearly the same stage of acidity as possible.

The ripening period in this trial was 12 hours.

Table XIII shows the result of the first trial of churning cream from the milk from each of the three groups.

TABLE XIII.

	Milk from		
	Group I.	Group II.	Group III.
Quantity of milk set..... Lb.	121	138	248
Per cent of butter-fat in milk.....	4·3	4·1	3·1
Creaming—			
Quantity of cream..... Lb.	26	27	38
Per cent of fat left in skim-milk.....	1·20	1·00	·65
Churning—			
Churning temperature..... Fahr.	64°	64°	62°
Minutes churned.....	150	100	40
Revolutions of churn per minute.....	65	65	66
Quantity of butter obtained..... Lb.	4·75	5·75	8·03
do buttermilk..... “	21	21	30
Per cent of fat left in buttermilk.....	·20	·30	·20
Results—			
Quantity of fat in whole milk..... Lb.	5·20	5·66	7·69
do do left in skim-milk and buttermilk..... “	1·18	1·17	1·42
do of milk per lb. of butter..... “	25·5	24·	31·
Percentage of fat unrecovered.....	22·69	20·67	18·46

THE SECOND TRIAL was made on 30th November. A portion of the milk of two days was used from the cows of each group. The milk was re-heated to a temperature of 98° after it reached the dairy building, and was set immediately thereafter in deep-setting pails, in ice-water of a temperature of 38° Fahr.

The setting period was 22 hours.

In each case 5 per cent of fermentation starter was added, and the cream of the three lots was ripened to as nearly the same stage of acidity as possible.

The ripening period in this trial was 15 hours.

Table XIV shows the result of the second trial of churning cream from the milk from each of the three groups.

TABLE XIV.

	Milk from		
	Group I.	Group II.	Group III.
Quantity of milk set Lb.	114	137	279
Per cent of butter-fat in milk.....	4	4.1	3.1
Creaming—			
Quantity of cream..... Lb.	22	27	51
Per cent of fat left in skim-milk	1.35	1.00	0.55
Churning—			
Churning temperature.....Fahr.	64°	64°	62°
Minutes churned... ..	180	100	50
Revolutions of churn per minute	60	65	66
Quantity of butter obtained..... Lb.	4.12	5.25	9.75
do buttermilk..... “	17	21	41
Per cent of fat left in buttermilk.....	.45	.35	.30
Results—			
Quantity of fat in whole milk..... Lb.	4.56	5.62	8.65
do left in skim-milk and buttermilk... .. “	1.31	1.17	1.37
Quantity of milk per pound of butter	27.6	26.1	28.6
Percentage of fat unrecovered.....	28.73	20.82	15.84

THE THIRD TRIAL was made on 4th December. A portion of the milk of two days was used from the cows of each group. The milk was re-heated to a temperature of 95° after it reached the dairy building. To the milk from Groups I and II, 10 per cent of water was added, before it was set; the milk from Group III was delayed in setting for half an hour; it was re-heated to 98° and set without the addition of water. The three lots were set in deep-setting pails, in ice-water of a temperature of 38° Fahr. The setting period was 22 hours. In each case 5 per cent of fermentation starter was added to the cream, and each lot was ripened to as nearly the same stage of acidity as possible. The ripening period in this trial was 16 hours.

Table XV shows the result of the third trial of churning the cream from the milk, from each of the three groups.

TABLE XV.

	Milk from		
	Group I.	Group II.	Group III.
Quantity of milk set.Lb.	116	121	308
Per cent of butter-fat in milk.	3·6	3·8	3·8
Creaming—			
Quantity of cream.Lb.	23	24	62
Per cent of fat left in skim-milk.	1·60	1·30	·50
Churning—			
Churning temperature. Fahr.	70°	64°	62°
Minutes churned	49	85	49
Revolutions of churn per minute.	65	65	66
Quantity of butter obtained. Lb.	3·25	4·75	12·00
Quantity of buttermilk. “	19	19	50
Per cent of fat left in buttermilk.	·35	·15	·20
Results—			
Quantity of fat in whole milk. Lb.	4·18	4·60	11·70
Quantity of fat left in skim-milk and buttermilk. “	1·55	1·28	1·33
Quantity of milk per lb. of butter. “	31	25·5	25·6
Percentage of fat unrecovered	37·79	27·82	11·37

Table XVI shows the length of time required for churning, and the percentage of butter-fat left in the buttermilk, from the three trials in each case.

TABLE XVI.

No. of Trial....	Group I.			Group II.			Group III.		
	First.	Second.	Third.	First.	Second.	Third.	First.	Second.	Third.
Churning temperature, Fahr...	64°	64°	70°	64°	64°	64°	62°	62°	62°
Minutes churned	150	180	49	100	100	85	40	50	49
Revolutions of churn per minute	65	60	65	65	65	65	66	66	66
Percentage of fat left in buttermilk	·20	·45	·35	·30	·35	·15	·20	·30	·20

The conclusions which were indicated by these churning experiments were:—

(1) That the cream from the milk of cows, which have been milking for periods of from five to eleven months, should be churned at a temperature of from 66° to 70° Fahr., in order to obtain butter in from one hour to three-quarters of one hour.

(2) That the loss of fat unrecovered from the buttermilk, was practically the same, viz., ·33, ·26, ·23 of 1 per cent of fat, left in the buttermilk, from Groups I, II and III, respectively.

(3) An examination of the butter showed a decided absence of rosy and delicate flavour in the butter obtained from the milk of cows which had been milking for longer than five months.

The second series of experiments in the churning of cream was made to determine the effect on the quantity of butter which could be obtained by churning cream at different stages of ripeness or acidity.

THE FIRST TRIAL was conducted on the 29th August; 120 lb. of cream were taken from 676 lb. of milk. The whole quantity of cream was mixed thoroughly, and afterwards divided into two equal lots. One lot was ripened by the addition of fermentation starter, and by being kept at a temperature of 64°; the other lot was cooled to 40° and kept sweet until the following day. Both lots were then divided into equal portions of 30 lb. each; 30 lb. of the sour ripened cream was then mixed with 30 lb. of the sweet cream, leaving three lots for churning, as shown in the following:—

Lot 1, sour cream.....	{	30 lb., sour, in churn No. 1.
		30 lb. }
		mixed, in churn No. 2.
Lot 2, sweet cream.....	{	30 lb. }
		30 lb. sweet, in churn No. 3.

A SECOND TRIAL was made on the 10th September, when 120 lb. of cream were taken from 774 lb. of milk. The whole quantity of cream was treated in the manner which has been described in the first trial.

The following Table shows the results from the two trials of churning cream at different stages of ripeness.

TABLE XVII.

	First Trial.			Second Trial.		
	No. 1	No. 2	No. 3	No. 1	No. 2	No. 3
No. of churn.....	No. 2	No. 5	No. 2	No. 2	No. 5	No. 2
Daisy churn..... Size.						
Quantity of milk..... Lb.	169	338	169	194	387	194
do cream..... "	30	60	30	30	60	30
Stage of ripeness.....	Sour.	Mixed.	Sweet.	Sour.	Mixed.	Sweet.
Churning temperature..... Fahr.	59°	60°	60°	62°	62°	62°
Minutes churned.....	53	35	65	40	30	65
Revolutions of churn per minute.	66	62	68	66	64	68
Quantity of butter obtained..... Lb.	6·5	12·7	6·	7·25	13·75	6·
do milk per lb. of butter "	26·	26·6	28·1	26·7	28·1	32·3
Per cent of fat left in buttermilk.	·20	·50	1·30	·15	·90	2·00

These trials showed:—

(1.) A longer churning period for the sweet cream than the sour; (the mixed cream was churned in shortest time, because the revolving barrel churn, size No. 5, was a larger size than No. 2);

(2.) 14·6 per cent more milk or cream of equal quality, required to yield each pound of butter, when the cream was churned sweet, than when it was churned sour;

(3.) The buttermilk from sweet cream to contain 1·65 per cent of fat, as compared with ·17 of 1 per cent of fat in the buttermilk from sour cream.

Other experiments on this matter are in progress.

Experiments on the Heating of Milk to 150° Fahr.

The heating of milk and cream to the scalding point—150° Fahr.—has been undertaken in some places, to sterilize them for keeping qualities and for wholesomeness in table use. Cream has been sterilized also for the purpose of regulating the degree of acidity which would be developed in a given time by the addition of a percentage of fermentation starter of known strength or acidity. Before undertaking a series of trials in the sterilizing of milk and cream, for the purposes which have been mentioned, a few tests were made to discover the effect of scalding milk and cream to 150° Fahr., upon the quantity, odour and flavour of the butter.

THE FIRST TRIAL was made on 10th October. 350 lb. of milk were mixed, after which 190 lb. were heated to 150° Fahr. Both lots were then set in deep-setting pails, in ice-water of a temperature of 38° Fahr.

The setting period was 22 hours.

A SECOND TRIAL was made on 12th October, when 360 lb. of milk were used. The treatment was similar to that of the first trial.

Table XVIII shows the results of heating milk to 150° Fahr., before setting in deep-setting pails in ice-water, from both trials.

TABLE XVIII.

	First trial.		Second trial.	
Quantity of milk set..... Lb.	190	160	195	165
Per cent of butter-fat in milk.....	3·40	3·40	3·40	3·40
Temperature when set..... Fahr.	150°	96°	150°	96°
Creaming—				
Quantity of cream..... Lb.	31	30	31·5	30
Per cent of fat left in skim-milk.....	1·00	·35	·90	·40
Ripening cream—				
Temperature..... Fahr.	67°	67°	64°	64°
Per cent of fermentation starter added.....	10	10	5	5
Ripening period..... Hrs.	10	11	16	16
Churning—				
Churning temperature..... Fahr.	64°	64°	64°	64°
Minutes churned.....	60	100	60	90
Revolutions of churn per minute.....	65	65	65	68
Quantity of butter obtained..... Lb.	5·75	5·50	5·80	5·75
Per cent of fat left in buttermilk.....	·15	·15	·3	·3
Results—				
Quantity of fat in whole milk..... Lb.	6·46	5·44	6·63	5·61
do do left in skim-milk and butter-milk..... “	1·64	·49	1·55	·61
do of milk per lb. of butter..... “	33·4	29·1	33·6	29·
Percentage of fat unrecovered.....	25·38	9·01	23·38	10·87

These two trials point to the conclusions:—

(1.) When the milk was heated to 150° Fahr., before being set in deep-setting pails, $4\frac{1}{2}$ lb. or 15·5 per cent more of milk was required to yield each pound of butter, than when the milk was set at a temperature of 96° Fahr.

(2.) When the milk was heated to 150° Fahr., 14·4 per cent more of the fat in the whole milk was not recovered from the skim-milk and butter milk, than when the milk was set at 96° Fahr.

(3.) In both trials the butter from the milk, which was not heated to 150°, was decidedly better in flavour and odour than the other lots.

Experiments in the heating of Cream to 150° Fahr.

The two trials in this experiment were conducted on 21st and 26th October. The main object was to discover the effect of scalding cream to a temperature of 150° Fahr., upon the odour and flavour, which are introduced into the milk and its products

from the feeding of turnips to cows. The cows were fed lightly upon turnips at first; and at the time when the milk was obtained for the second trial they were consuming 90 lb. of turnips per head per day in their ration. That excessive quantity was fed to make the trial of a treatment for expelling the turnip odour and flavour more emphatic one way or the other.

FOR THE FIRST TRIAL the milk of two days, weighing 758 lb., was set each day at a temperature of 96° in deep-setting pails, in ice-water of a temperature of 38°. From the two days' milk 140 lb. of cream were obtained. That quantity was divided into two equal portions, one of which was heated to 150° Fahr.

FOR THE SECOND TRIAL the milk of one day, weighing 387 lb., was set at a temperature of 96°, in deep-setting pails, in ice-water of a temperature of 38°. From the milk, 70 lb. of cream were obtained. That quantity was divided into two portions, one of which was heated to 150° Fahr.

Table XIX shows the details of treatment afterwards, and also the results in the quantity of the butter and the percentage of loss of the fat.

TABLE XIX.

	First trial.		Second trial.	
Quantity of milk set..... Lb.	380	378	191	196
Percentage of butter-fat in milk	3·6	3·5	3·6	3·6
Temperature when set.....Fahr.	96°	96°	96°	96°
Creaming—				
Quantity of cream.....Lb.	70	70	35	35
Percentage of fat left in skim-milk.....	·45	·55	·51	·60
Cream heated to..... Fahr.	150°	65°	150°	68°
Cream cooled to..... “	50°	.....	50°	.....
Ripening Cream—				
Temperature.....Fahr.	65°	65°	65°	68°
Percentage of fermentation starter added.....	6	6	6	6
Ripening period..... Hours	14	14	14	16
Churning—				
Churning temperature.....Fahr.	61°	64°	64°	64°
Minutes churned.....	35	40	45	50
Revolutions of churn per minute.....	65	66	66	66
Quantity of butter obtained..... Lb.	14	1·35	7	7·2
Percentage of fat left in buttermilk.....	·4	·3	·1	·3
Results—				
Quantity of fat in whole milk.....Lb.	13·68	13·23	6·88	7·06
Quantity of fat left in skim-milk and buttermilk... “	·78	·70	·86	·98
Quantity of milk per lb. of butter..... “	27·1	28·	27·3	28·
Percentage of fat unrecovered	13·01	12·85	12·5	13·88

These two trials point to the conclusions:—

(1.) When the cream was heated to 150° Fahr., before being ripened for churning, $\frac{8}{10}$ of 1 lb. less milk was required to yield each pound of butter than when the cream was not heated above 68° Fahr.

(2.) The percentage of fat unrecovered from the buttermilk, was practically the same in both cases.

(3.) In both trials, the butter obtained from the cream, which was heated to 150° Fahr., had no flavour or odour of turnips, and was decidedly better in every respect than the other two lots.

(4.) In both trials, the butter obtained from the cream, which was not heated above 68° Fahr., had a distinct odour and flavour of turnips, the lot from the last trial on 26th October giving a particularly strong smell and taste of turnips.

(5.) In both trials, the butter obtained from the cream, which was heated to 150° Fahr., was excellent in flavour and grain. It was rated at 37 and 36 for flavour out of a possible 40 (perfection); and at 30 (perfection) for grain.

(6.) In both trials, the butter obtained from the cream, which was not heated above 68° Fahr., was rated lower than the other lots. The points awarded to it were:—flavour, 35 and 25, out of a possible 40 (perfection);—and grain, 30 and 29, out of a possible 30 (perfection).

NOTE.—The butter was re-examined in glass jars, on 8th March, 1892, when the previous judgment was confirmed.

Disposal of Dairy Products.

The record of the quantities of milk received at the experimental dairy building from May—when the work there commenced—until December, and the disposition which was made of the same, is submitted herewith.

Milk received at the dairy for experimental work:

	Lb.
May.....	12,795
June	11,522
July.....	10,428
August.....	7,502
September.....	7,352
October.....	11,322
November.....	8,936
December	6,501

76,358

	Lb.
Butter in lb. prints, sold at 22c. and 25c. per lb.....	1,939½
Butter in tubs and experimental jars, sold.....	321
do do do on hand.....	210

2,470½

	Quarts.
Cream sold to residents on the farm at 20c. per quart....	127½

	Quarts.
Buttermilk sold at 2c. per quart.....	404

The skim-milk and the remainder of the buttermilk were fed to calves and pigs.

	Quarts.
Milk sold to residents on the farm at 4c. and 5c. per quart.	6,634½

PART IV.—FORTY-ACRE LOT.

In the spring of the year it was arranged that about 40 acres of land should be set apart for the particular object of growing feed for cattle, in order to ascertain and illustrate how many cattle could be fed for the whole year upon the product of that area. In many parts of Canada an impression has prevailed that farmers

cannot keep or feed at a profit large herds of cattle unless they have large farms. In most instances the estimate is that six full-grown cattle, and an equal number of young growing stock, are as many as can be fed conveniently on the fodder and coarse grain crop of a farm of representative size, of say 55 acres of cleared land. As a matter of fact, the average number of horned cattle kept per farm is about four head of full grown animals, and an equal number of growing young stock. It appears to me that the numbers of cattle might be doubled, with increasing profit to the farmers, and decided gain to the fertility of the fields. A further extension and improvement in mixed farming, which will cause more cattle to be fed on fewer acres, is capable of great service to the whole agricultural interest of the Dominion. This experiment has been in progress for only six months of the year. The full report can be made with satisfaction only at the close of each twelve months. The following report of progress will show the areas of land under different crops, and the yields of each which were obtained. In a general way, it may be said that the yield of crops did not reach my anticipations. The corn crop was the lightest per acre which has been gathered for three years, and a disastrous hail storm on 13th August beat down the grain crops and battered the leaves of the corn to a very serious extent. The recurrence of an injury from that cause is unlikely in coming years, as it has been infrequent in past years. Continued rains during the harvest season caused further losses in the grain crops. Notwithstanding these drawbacks, the experience of the year points to the probability that 25 milch cows will be fed, wholly or nearly so, on the product of the 40-acre lot for eleven months. On 2nd July 25 cows were put in one herd, to be fed from its crops. The milk from them furnishes a supply for experimental dairy work; and feeding experiments are being conducted with them, on different rations, as described in Parts I and III of this report:—

TOTAL YIELD OF CROPS FROM 40-ACRE LOT.

Ripened Crops.

	Lb. of Straw.	Lb. of Grain.
8 acres, mixed crop, as in Table I.....	26,454	13,245
3 acres { Golden Vine Pease.....		905
{ Goose Wheat.....	1,003	437
{ Beardless Barley.....	3,102	1,373
{ Banner Oats.....	2,790	2,060
3 acres, in 5 plots of mixed crop, similar to plots 1 to 5 in Table I.....	10,442	4,345
<u>14</u> Totals	<u>43,791</u>	<u>22,365</u>

Root Crops.

	Lb.
1 acre, Carrots	26,785
1 acre, Mangels and Turnips { Mangels	8,110
{ Turnips	9,655
1 acre, Turnips	29,584
<u>3</u> Total.....	<u>74,134</u>
<u>$\frac{1}{2}$</u> acre, Cabbage and Kohl Rabi.....	<u>15,296</u>

Cured Fodder Crops.

2 acres, Spring Rye, wilted 12 hours and put in silo, 14,080 lb.

Mixed crop, cereals, second cutting, 1,825 lb.

11½ acres, Corn, wilted on an average two days, and put in silo, 130 tons 1,750 lb.
(That is equal to 183 tons 450 lb., green weight.)

1 acre, Corn, stooked in field to cure, 11,940 lb., as weighed February, 1892.

14½

1½ acres, Corn, fed green to the cattle (from 7th August), with mixed crop.

4½ acres, pastured.

3½ acres, mixed crop, as in plots 1 to 5, fed green; nearly 1½ acres of this was used in erecting paddocks for the bulls, and the crop on it was partially spoiled by the traffic incident to the work.

The following Table and explanatory notes present the details of the different crops:—

Ripened Crops.

EIGHT ACRES MIXED CROPS.—The land had no manure applied for at least five years; it was cropped every year; it was ploughed in the fall of 1890; it was disc-harrowed twice in spring of 1891; the smoothing harrows were used on it twice. It was divided into eight plots, each one acre in size.

A different mixture of grain was sown on each plot.

TABLE I.

	Number of Plot.							
	1	2	3	4	5	6	7	8
Mixture sown—								
Goose Wheat..... Bush.	½	1	1	.....	1	1½	.....	.....
Danish Chevalier Barley. “	¾	1	.....	1	1	.....	1½	.....
Banner Oats “	1	.....	1	1	1	.....	.....	1½
Golden Vine Pease “	¾	1	1	1	.....	1½	1½	1½
Flax..... Lb.	2	2	2	2	2	.....	.....	.....
Total per acre..... Bush.	3	3	3	3	3	3	3	3
Date sown	April 30	April 30	April 30	April 30	April 30	April 30	April 30	April 30
Came up.....	May 12	May 12	May 12	May 12	May 12	May 12	May 12	May 12
Date when ripe.....	Aug. 24	Aug. 17	Aug. 17	Aug. 17	Aug. 17	Aug. 22	Aug. 22	Aug. 22
do cut.....	do 26	do 18	do 17	do 18	do 17	do 25	do 25	do 25
Quantity of straw and grain.. Lb.	4,945	4,860	4,975	5,180	4,864	5,175	4,870	4,830
Grain from thresher “	1,728	1,595	1,518	1,795	1,808	1,871	1,435	1,495

NOTES.—The mixtures were all sown on 30th April, and came up on 12th May. Two pounds of flaxseed were sown with the mixtures on plots 1 to 5. It ripened, and was ground with the grain for the feeding of cattle. I think at least 3 pounds per acre will give better returns.

The crop from plot 6—wheat and pease—gave the largest yield of grain per acre. That mixture of grain is also the most valuable for feeding in combination with corn ensilage. The second largest yield of grain was on plot 5, from a crop of wheat, barley and oats. I do not recommend this mixture, as I consider that every mixture should contain either pease or vetches. These latter grains do not require to obtain their supply of nitrogen from the nitrates in the soil as the other grains of the mixture do.

Owing to a severe hail storm on 13th August, and rains before and during harvest time, the crops on all the plots were very badly broken down and lodged. In consequence, a large percentage of grain was shelled on the field.

PLOT 1.—Mixture of wheat, barley, oats and pease; all ripened together fairly well, excepting the wheat, which was in the doughy state when the other grains were ripe; cut with the mower, because too badly lodged to be cut with the reaping machine.

PLOT 2.—Mixture of wheat, barley and pease; wheat in doughy state when other grains were ripe, 17th August; badly broken down and lodged; cut with mower.

PLOT 3.—Mixture of wheat, oats and pease; wheat in doughy state when other grains were ripe; badly lodged; cut with mower, 18th August.

PLOT 4.—Mixture of barley, oats and pease; badly lodged; cut with mower, 18th August.

PLOT 5.—Mixture of wheat, barley and oats; wheat in doughy state when other grains were ripe; cut 17th August.

PLOTS 6, 7 and 8.—Mixture of wheat and pease, barley and pease, and oats and pease; all badly lodged, and cut with the mower, 25th August.

THREE ACRES OF GRAIN.—The land, whereon were grown the pease, wheat and barley, was manured in the spring at the rate of from 18 to 20 tons to the acre; it was ploughed, and harrowed twice; part of the pease and wheat crops were taken in, and parts were injured by the enclosing of the bull paddocks which have been mentioned; part of the acre of barley was injured and part of the crop was killed by water standing on it; that was owing to unusually heavy rains and the failure of a drain to work efficiently; the land for the Banner oats adjoined plot 8, and received treatment similar to plots 1 to 8.

THREE ACRES OF MIXED CROP.—The soil was of a peaty character; it received a coating of manure at the rate of from 18 to 20 tons per acre; it was ploughed in spring, and harrowed twice; the mixtures were the same as on plots 1 to 5; they were sown on 9th May and came up on 16th May; parts from the ends of each plot were cut and fed green, as mentioned in the summary of the yield of crops; three acres were left to ripen.

Root Crops.

Three acres were prepared for sowing, one acre each of carrots, mangels and turnips. The land received a coating of manure at the rate of from 18 to 20 tons to the acre. It was ploughed in the spring, harrowed twice, and set up in drills $2\frac{1}{2}$ feet apart.

CARROTS.—Five varieties were sown for comparison, but owing to the wet season, and water standing on part of the plot for several days, the crops were not grown under sufficiently uniform conditions to make any fair comparison of the yield per acre of the different varieties. "Steele's Improved Short White," "Giant Short White," or "White Vosges," "Green Top Orthe," "Improved Half-long White," and "Early Gem," or "Guerande," were the varieties which were sown.

NOTES.—Sown 13th May; came up 26th May; pulled 30th October. Total weight of the five varieties, 26,785 lb. from one acre.

MANGELS.—Five varieties were sown on 13th May and came up on 26th May. The names of the five varieties were "Pearce's Canadian Giant," "Golden Fleshed Tankard," "Giant Yellow Intermediate," "Mammoth Yellow Intermediate," and "Giant Yellow Globe." From 10th June to 14th June cut-worms destroyed about two-thirds of the young plants. The spaces were sown with turnip seed on 15th June. The yield of mangels was 8,110 lb., and of turnips 9,655 lb. from one acre.

TURNIPS.—Five varieties of turnips were sown on 4th June. The names of the varieties were, "Improved Purple Top Mammoth," "Laidlaw's Improved," "Elephant Swede," "Hartley Bronze," and "Rennie's Prize Purple Top." They all came up 10th June. They were pulled 24th October. There was a large percentage of the turnips in one part of the plot diseased. The inside of the roots turned to a jelly-like mass, before there was any easily recognizable evidence on the outside

that decay had set in. A similar disease prevailed in the turnips on other parts of the farm, and in the vicinity of Ottawa on other farms. The total yield of the five varieties was 29,584 lb. from one acre.

CABBAGE AND KOHL RABI.—Half an acre of the land, prepared in the same manner as for the roots, was sown with cabbages and kohlrabi. The cabbages were put in rows 3 feet apart, and the plants were left 2 feet apart in the rows. Four varieties were sown, viz.: "Early Drumhead," "Drumhead Savoy," "Giant Drumhead," and "Thousand Headed, or Kale." They were sown on 14th May and came up on 23rd May. Two-thirds of each variety were eaten by the turnip-flea beetle and cut-worms. The same varieties were sown in their place on 5th June and came up on 12th June. The kohlrabi suffered in a similar manner, and a re-sowing was made on 6th June. The second crop came up on 12th and 13th June. The total weight from the cabbage and kohlrabi was 15,296 lb. from half an acre.

Cured Fodder Crops.

TWO ACRES SPRING RYE.—The land received a dressing of manure, about 18 or 20 tons to the acre; it was ploughed in the spring and harrowed twice with smoothing harrow; sown 1st May; came up 11th May; cut 15th July. When the heads were filled with grain in the doughy or late milk state it was allowed to wilt in the field for twelve hours and then put into the silo; total weight, 7 tons 80 lb. (For remarks on rye ensilage, see report on silos.) The same land was ploughed 17th July, and sown with a mixture of Hungarian grass and millet; this second crop did not come to anything worth mentioning for feed.

FOURTEEN ACRES OF FODDER CORN.—Ten acres of the land were in one block; an oat crop had been taken off in 1890. In the spring of 1891 a dressing of manure, at the rate of about 18 tons to the acre, was given; it was ploughed under, and the land harrowed twice. The soil was very uneven in its character; a part of it was a mellow, sandy loam, with streaks and patches of clay soil of a whitish colour. These patches, in some cases, were 50 feet across; about two acres of it were of a peaty character, with interruptions of loam and patches of clay. Parts of the land had been a swamp four years ago, and portions of it had been burned during the clearing. For these reasons, the yields per acre in that portion of the block did not give results which could be relied upon as guiding to a knowledge of the best practice in planting or in selecting varieties.

FOUR AND ONE-HALF ACRES were devoted to the planting of the varieties of Red Cob, Pearce's Prolific, Longfellow and Thoroughbred White Flint, (1) at rates of 2, 4, 6 and 12 grains respectively to the lineal foot, in rows 3 feet apart, and (2) in rows 3, 4 and 5 feet apart, with about 3 grains to the foot, planted by a seed-drill.

The corn was planted on 23rd May, and was cut on 16th and 17th September. It was left to wilt in bunches on the field for an average of two days before being put into the silo. The total weight after wilting, from the $4\frac{1}{2}$ acres, was 49 tons 1,740 lb. From a test made on another plot, corn was found to have lost 28.5 per cent in weight by wilting in small bunches in bright sunshiny weather for two days. At that rate of shrinkage, the green weight of corn on the $4\frac{1}{2}$ acres would be calculated as 69 $\frac{3}{4}$ tons.

ONE ACRE of Red Cob and Longfellow was planted in rows 3 feet apart, two rows of each alternately, 18 lb. of seed per acre; cut 16th September; wilted two days; weight, 10 tons 785 lb.

ONE ACRE of Thoroughbred White Flint and Pearce's Prolific was planted in a similar way; cut 16th September; wilted two days; weighed 12 tons 350 lb.

ONE ACRE of Red Cob and Longfellow was planted in rows 3 feet apart, with the seed mixed before planting; 18 lb. of seed per acre; cut 14th September; wilted two days; weighed 11 tons 1,685 lb.

ONE ACRE of Thoroughbred White Flint and Pearce's Prolific was planted in a similar way; cut 14th September; wilted two days; weighed 11 tons 1,600 lb.

ONE ACRE of Thoroughbred White Flint and Longfellow was planted in a similar way; cut 14th September; wilted two days; weighed 10 tons 1,745 lb.

HALF AN ACRE Red Cob (corn, 5 lb. and pease 5 lb.) was planted in rows 3 feet apart. The mixture was not a success; the corn was a good crop, but the pease came up too soon and did not use the corn stalks as a trellis. The crop was fed to the cattle green.

TWENTY FEET by width of block, 562 feet, Red Cob corn and pease, were sown by ordinary seed drill with spouts 7 inches apart; corn and pease in alternate drill rows; the corn was of a variety too late in maturing to be mixed with pease; a heavy crop was obtained; fed green; this mixture of corn and pease, in same order of sowing, promises to be useful in obtaining a more complete ration for cattle than corn is in itself.

FOUR ACRES sandy loam; size of the plot, 562 x 310 feet; of it, 562 x 210 feet received a dressing of manure, at the rate of about 18 tons per acre; ploughed in spring; harrowed three times; planted in four lots, one each of Red Cob, Thoroughbred White Flint, Pearce's Prolific, Thoroughbred White Flint and Longfellow; about one acre was fed green; the remainder was cut 18th September; wilted for two days and put into silo; the remainder was stooked in the field, to be used as dried and cured fodder corn.

The cutting of corn to be fed green to the cows commenced on 7th August.

Particulars and Tables, showing the comparative yields, stages of maturity, number of ears per 100 feet, and condition of the corn ensilage, will be found in Part V of this report.

Three and one-fifth acres of fall rye have been sown for feeding in the spring of 1892, and for use as ensilage during the early part of summer.

PART V.—FODDER CORN AND THE SILOS.

It is not too much to say that no single subject closely related to successful agriculture is receiving so much attention from the agricultural press of Canada, or is creating so much discussion at conventions and meetings of farmers, as that of the growing of fodder corn and the making of ensilage. The economical feeding of cattle in stables, and the increasing of the number of cattle which are kept per farm, are matters peculiarly important to the farmers of Ontario and the provinces that lie eastward of it. The economic possibilities of fodder corn and the silo have been mentioned in connection with the fattening of steers for beef and the feeding of cows for milk, in Part II of this report. This brief chapter is presented for the purpose of indicating how the farmers in every district may obtain the largest service from this crop. No specific rule or direction will be found applicable to all soils, districts or seasons; but in all districts, in nearly all soils, and in every season, the corn crop will yield the farmers in the provinces which I have mentioned feeding material for their cattle during the winter, with more profit and advantage than any other single crop which can be grown with as little labour and exhaustion to the fertility of the land, and which can be saved in a cured condition as conveniently.

On one plot on the farm, 68 varieties of corn were planted in rows 3 feet apart—two rows of each—to a length of 90 feet. They were planted on the 21st of May and came up from 1st June to 4th June. They were all cut on 12th September. The average yield, weighed green, was 17 tons and 47 lb. per acre. Particulars on the comparison of varieties for one season only are apt to be rather misleading. Some of the varieties, which gave excellent results on the farm during the two previous years, and did equally well on other parts of the farm in 1891, did not turn out so well on this experimental plot; but, taking the plots on the whole farm, the results as published in Bulletin No. 12, prepared by Prof. Saunders, can be taken as agreeing with the results for the season of 1891. The following short extract is taken from that bulletin:—

"From the results given, it would appear that the Thoroughbred White Flint, Long White Flint, Long Yellow Flint, Yellow Dutton, Large White Flint, Pearce's Prolific and Longfellow, are the most productive of the Flint varieties, ranging in

yield in the order named, and all of them, excepting the Long White Flint, attained a sufficient degree of maturity to make excellent ensilage.

"Among the different sorts of Dent corn, none of which, however, mature as well as the Flint varieties, the following have been found to yield the greatest weight of crop:—Virginia Horse-tooth, Golden Beauty, Golden Dent, Blunt's Prolific, Mammoth Southern Sweet and Red Cob Ensilage.

"Many sorts of sweet corn have given a large yield, the most prolific being Mammoth Sugar, Crosby, Eight-rowed Sugar, Egyptian Sugar and Asylum Sweet. The earliest ripening among these is the Crosby."

On a plot adjoining the one where the 68 varieties were planted, Thoroughbred White Flint was planted in hills 3 feet apart. Two rows of it of an equal length, from the hill method of cultivation, gave at the rate of 4 tons 250 lb. per acre larger yield than two rows under the drill method of cultivation, grown close by. It would not be prudent to base a general conclusion on the result of this one comparison. The method of cultivation in hills seems to permit of the formation of a larger number of ears on the stalks, and a rather earlier maturing of the crop.

From the corn which was grown on the 40-acre plot, already reported upon, some information bearing upon the comparative value of the crop of corn at different stages of maturity has been obtained. The stage of maturity reached has been recorded at the "tasselling," "silking," "early milk," "late milk" and "glazing" stages of growth.

The following Table illustrates the number of ears and nubbins, obtained from planting in rows 3 ft., 4 ft. and 5 ft. apart, with from 3 to 4 grains per lineal foot in the rows:—

TABLE I.

Number of Ears and Nubbins, in rows 100 feet long, on 15th September.

Varieties.	Distance of Rows apart.					
	Three Feet.		Four Feet.		Five Feet.	
	Ears.	Nubbins.	Ears.	Nubbins.	Ears.	Nubbins.
Red Cob.....	20	49	16	95	22	109
Pearce's Prolific..	102	22	91	20	143	39
Longfellow.....	87	23	121	30	134	34
Thoroughbred White Flint.....	13	51	45	48	63	59
Average.....	50	36	68	48	90	60

While the rows 5 feet apart showed the largest number of ears and nubbins per lineal foot in the rows, the three different methods of planting gave nearly the same numbers each per acre.

Information on the comparative percentages of water, dry matter, yields per acre, dry matter per ton, and dry matter per acre, at the different stages of growth of the four varieties, "Longfellow," "Pearce's Prolific," "Thoroughbred White Flint," and "Red Cob," are found in the following Table:—

TABLE II.

Name of Variety.	Planted.	Tasselling.	Silking.	Early Milk.	Late Milk.	Glazing.
Longfellow.....	May 23.....	Aug. 1 ...	Aug. 11....	Aug. 27....	Sept. 10....	Sept. 21....
Pearce's Prolific.....	do 23.....	do 3. .	do 13 . .	do 29....	do 12....	do 22....
Thoroughbred White Flint	do 23.....	do 18....	do 25....	Sept. 22....	Oct. 3....	.....
Red Cob.	do 23.....	do 22....	Sept. 2....	Oct. 3....	.....	.....
Per cent of water in green plants		85·73	88·8	80·0	77·8	73·8
do dry matter in green plants..		14·27	16·17	19·95	22·14	26·18
Yield per acre (green weight) Lb.		45,329	48,052	45,806	42,759	43,154
Dry matter, per ton of green corn.. do		285	323	399	443	524
do per acre do		6,468	7,770	9,138	9,467	11,298

These figures point to a very large increase in the weight of dry matter per acre as the corn approaches the ripe condition.

The analyses of these varieties of corn and the calculations have been made by Mr. F. T. Shutt, Chief Chemist. A more extended analysis of the corns will doubtless appear in his Report for 1891 or 1892.

Corn of the same four varieties was also grown under a method of cultivation with from three to four grains to the lineal foot, in rows of 3 feet, 4 feet and 5 feet apart, respectively, in each case. The following Table shows the average yields per acre which were obtained from the different methods of planting:—

TABLE III.

Weights of four varieties of Indian Corn sown in rows 562 feet long. Four rows of each variety were sown at the distances of 3 feet, 4 feet and 5 feet apart, respectively.

The corn was wilted two days before weighing.

Varieties.	Distance of Rows apart.		
	3 feet.	4 feet.	5 feet.
	Lb.	Lb.	Lb.
Red Cob.....	2,970	5,330	5,305
Pearce's Prolific	2,568	2,800	4,470
Longfellow.....	2,464	3,430	4,110
Thoroughbred White Flint.....	3,058	4,270	5,190
Average per acre.....	17,857	19,154	18,479

Taking into account the convenience of cultivation, the keeping down of weeds, and the quality of the stalks, it appears that the best results are obtained from planting in rows 3 feet or $3\frac{1}{2}$ feet apart, or, better still, in hills 3 feet apart each way.

The same four varieties of corn were also planted in rows 3 feet apart, at the rates of 2, 4, 6 and 12 grains per lineal foot in each row. The land on which they were grown was so irregular in character that no fair comparison of the yields that may be obtained per acre from these different methods of planting could be made. A brief report of the quality of the ensilage from these methods of planting the corn will be made.

These four varieties of corn were also planted in different combinations (1) two rows of each alternately, and (2) two of the varieties mixed in each row. The following Table shows the results obtained from these investigations:—

TABLE IV.

Method.	Varieties.	Stage of Growth.	Weight per Acre, wilted.	Green Weight per Acre. (Calculated)
			Lb.	Lb.
Two rows alternately.....	{ Red Cob..... Longfellow.....	{ Silking..... Late milk.....	20,785	29,099
Two rows alternately.....	{ Thoroughbred White Flint.. Pearce's Prolific.....	{ Early milk..... Late milk.....	24,350	34,090
Seed mixed before planting...	{ Red Cob..... Longfellow.....	{ Silking..... Late milk.....	23,685	33,159
do do ...	{ Thoroughbred White Flint.. Pearce's Prolific.....	{ Early milk..... Late milk.....	23,600	33,040
do do ...	{ Thoroughbred White Flint.. Longfellow.....	{ Early milk..... Late milk.....	21,745	30,443

These five acres were all planted on 23rd May, cut on 12th September, and wilted for two days. The green weights per acre would be about 40 per cent more than the wilted weights.

There does not appear to be any advantage from the planting of different varieties in alternate rows, nor from the mixing of varieties in the same rows.

The heaviest yield on a single acre of corn was one acre of Thoroughbred White Flint, which weighed, after two and a-half days' wilting, 12 tons 900 lb.

Condition of Ensilage.

In silo No. 1 there were 116 tons and 1,259 lb. of mixed varieties, odd plots, and Thoroughbred White Flint. The silo was opened on 10th October. It had been covered with a layer of straw to a depth of about 18 inches. On the top it was spoiled to a depth of about 2 inches, and there was of spoiled and mouldy ensilage 3,333 pounds. The total weight of waste ensilage from this silo, besides that found on the top, was 100 pounds. The corn for this silo was cut in lengths fully 1 inch long. The cattle refused to eat portions of the larger stalks, and also portions of the cobs.

In silo No. 2 there were 95 tons 1,135 lb. It also was covered with a layer of straw. There was spoiled and mouldy ensilage on top for a depth of 2 inches, which weighed 2,694 pounds. The surface area in both silos was 18 feet x 16 feet. Different

lots of corn, according to the method of planting under which they were grown, were put in separate layers. They were divided from each other by a layer of uncut corn stalks.

The first layer was one of ensilage from Red Cob corn, grown in rows 3 feet, 4 feet and 5 feet apart. It had barely reached the "early milk" stage when cut. The sample was in only medium condition as to preservation.

The next layer was that of the four varieties of corn planted in rows 3 feet apart, with 12 grains to the lineal foot in each row. It had been allowed to wilt in the field until it had become rather dry. When it was taken from the silo it was in fairly good condition, but so dry that the meal of the ration would not adhere to it.

The next layer of ensilage was from the four varieties of corn planted in rows 3 feet apart, with 6 grains to the lineal foot in each row. This layer was found to be in an excellent condition as to preservation, but was rather dry from too much wilting.

The fourth layer of corn in this silo was from four varieties of corn planted in rows 3 feet apart, with 4 grains to the lineal foot. The ensilage was in an excellent state of preservation, and was not quite so dry in condition as the two layers above it. This silo was then closed for several weeks. Before this writing (February) it has been reopened. On the top was found a layer of mouldy ensilage, which weighed 2,840 pounds.

The fifth layer of the silo was from the corn of four varieties, planted in rows 3 feet apart, with 2 grains to the lineal foot in each row. This sample was of better quality, and in better condition as to preservation, than the ensilage from the same varieties of corn, planted with 4, 6 and 12 grains to the lineal foot in each row, respectively. The contents of silo No. 2 are being fed at this writing.

Silo No. 3 was constructed on the barn floor. Like the other silos, it is lined inside with two plies of lumber with paper between. The ensilage in it also was covered with straw; and there was of spoiled ensilage on the top a weight of 2,130 pounds. Its area is 15 feet by 15 feet. In a comparison between the condition of the ensilage in this silo, from the three varieties of corn, each grown in rows 3 feet apart, 4 feet apart and 5 feet apart, that from the corn grown in rows 4 feet and 5 feet apart, respectively, was found to be in the best condition. That appeared to be attributable to the fact that the stalks were rather more matured, and, as shown in Table I, carried a larger number of ears each. This silo is located over the stable, on a stout, 3-inch plank floor. A considerable quantity of ensilage was spoiled in the bottom of the silo.

ENSILAGE FROM MIXED CROPS.—Some ensilage was made from a crop of mixed grain (oats, barley and pease)—grown in the summer of 1890. It was put into the bottom of the silo, and about 100 tons of green corn were put on top of it. After the corn was fed, the mixed crop ensilage came out in most excellent condition, and was fed to the cattle and calves as late as May and June.

PEASE ENSILAGE.—In the autumn of 1890 part of a crop of pease was cut, when the pods were filled but not ripe, and put into the silo, to determine the value of such ensilage for the feeding of young pigs. The results are recorded in Table 2, in Part II of this report. The pease ensilage was fairly well preserved; but it gave off a very strong smell of ammonia whenever the surface was disturbed.

RYE ENSILAGE.—A crop of rye from two acres, weighing 7 tons 80 pounds, was put into the silo on 16th July, 1891. Feeding was commenced immediately. It had been allowed to ripen and wilt rather too much; in consequence, a portion of it became quite dry, and was not relished by the cattle. For the making of rye ensilage, the crop should be cut decidedly on the green side, and put into the silo without very much wilting.

CLOVER ENSILAGE.—A quantity of second crop clover was cut and put into the silo. It was put into the silo without being run through a cutting-box; in consequence, it packed rather loosely and unevenly, with holes and spaces in places. These became slightly mouldy. The bulk of the clover, however, is well preserved and is relished by the cattle.

CONCLUSIONS.—In the making of ensilage from mixed crops, rye or clover, it is desirable to put the crops into the silo in a green and succulent condition. They should be run through a cutting-box, to provide for even distribution and close packing. They must be weighted heavily, either by the application of artificial pressure, or by being put into the bottom of a silo, which will be filled shortly afterwards with corn ensilage. The interstitial spaces between the fine stalks of such crops as oats, pease, rye, clover and grass, hold sufficient air to cause them to mould or decay, unless pressure be applied to expel it. The silo offers a convenient place for the saving of such crops, when the weather is unfavourable, but the lighter yield which can be obtained of them per acre hinders them from being as profitable to grow for ensilage as a crop of corn, wherever that can be grown to the "late milk" or "glazing" stage of maturity.

The experience of the season points to the following conclusions in regard to the growth of corn, the construction of silos, and the filling of the same :

SOIL.—If a field with a loose, warm, loamy soil be convenient to the silo, and can be used, it should be selected in preference to heavy clay, or cold soils. Sod may be ploughed under, shortly before the crop is planted, with the probability of good results from that method of preparation. In all cases, the land should receive a liberal dressing of barnyard manure, be ploughed in the spring, and be harrowed to a state of fine tilth before the corn is planted.

SEED.—The vitality and vigour of growth of the variety of corn which has been selected should be tested. The putting of a few grains in a flower pot in a warm place in the house will enable any farmer to verify for himself these qualities in his seed grain. Frequent disappointment results from neglect in testing the vitality of corn before planting it. As a general rule, the variety which will yield the largest weight per acre, and reach the "glazing" stage of maturity before the frosts come, is the one to select for any district. The "glazing" stage may be otherwise described as the stage when the corn is just past its best condition for boiling in the ear for table use. It is better to err on the side of selecting a variety of a habit of small growth, which certainly will reach the glazing stage, than a variety of large growing habits, which may not come to the desired stage of maturity.

The maximum quantity of seed per acre may be put at 25 pounds; excellent results have been obtained from the planting of 18 to 20 pounds per acre.

MANNER OF PLANTING.—Planting in hills, 3 feet apart, both ways, appears to afford the corn a better chance for maturing early, and for producing a large number of ears. A hand corn-planter may be used to dibble in the corn. From 4 to 6 grains per hill should be planted. Corn may also be planted by the use of a hoe, and covered to a depth of at least 2 inches. In that case the foot should be pressed on the soil over the corn. For small areas, furrows 3 inches deep may be ploughed 3 feet apart. A marker (which may be constructed by driving wooden pins or harrow-teeth through a plank at distances of 3 feet from each other), may be drawn across the furrows. From 4 to 6 grains may be dropped at the points of intersection. They can be covered quickly and well by the planter's foot. For large areas, a single or double horse corn-planter may be used with advantage. The planting of corn in hills affords an opportunity for the effective cleaning of land from weeds, without much hand labour, by permitting cultivation in both directions.

If planted in rows, the rows should be from 3 to 3½ feet apart, and the grains may be put in at rates of 3 to 4 grains per lineal foot. For small plots, a convenient method is to open a furrow with a plough; the seed may be dropped in at the rate already mentioned, when it may be covered. For large areas, a single or double corn-planter will be found a serviceable implement.

DEPTH.—Corn seed should be planted to a depth of from 2 to 3 inches.

CULTIVATION.—In cases where a crust forms on the land, before or immediately after the corn comes through, a light harrowing will prove very helpful to the vigour and growth of the crop. Harrowing of the corn until it is 6 inches high will increase the rapidity of growth and the yield per acre. The cultivation between the rows, when the plants are small, should be close to them, and deep. When the

plants have grown to a height of more than 3 feet the cultivation should be more distant and shallow, in order to avoid injuring the side roots of the plants.

SILOS.—The main features that are required in a silo are strength to resist the outward pressure of its contents, exclusion of air by the construction of the sides, and a fair depth of holding capacity, in order to permit the ensilage to settle into a compact mass. Sufficient strength of sides can be obtained in most silos by the use of 2 x 10-inch or 2 x 12-inch studs, placed from 18 inches to 2 feet apart. A clay or earthen floor is most economical, and as good as any that can be put in. The inside of the walls of the silo may be finished by a single lining of lumber, nailed to the studs horizontally. The lumber should be tongued and grooved and dressed on the inside. If each alternate board be allowed to extend at the corners, so as to make a lock-joint, that will give additional strength to the structure. The corners of the silo, on the inside, should be filled by the use of a board or plank 10 inches wide, set on end. The triangular space behind it should be filled with sand or sawdust. I consider that studs 2 x 10-inch or 2 x 12-inch, with one ply of sound tongued and grooved lumber, nailed horizontally on the inside, are sufficient for an efficient preservation of the ensilage. Additions to that method of construction may be advantageous, in a few cases, for convenience. If a portion of the ensilage around the sides becomes frozen, that is more an inconvenience than a loss. It should be mixed with the warm ensilage, from the middle of the silo, before it is offered or fed to the cattle.

CUTTING THE CORN.—The cutting of fodder corn by hand has been found the most economical of the methods which we have tried. If the crop be allowed to wilt in the fields, until it loses from 15 to 20 per cent of its moisture, a pleasant aromatic odour will be developed, which leaves the ensilage with a more agreeable smell. From an examination which was conducted with two tons of corn, left to wilt in the fields, in small heaps of about twenty-five or thirty stalks each, it was found that, with two days' exposure during bright sunshiny weather, the corn lost 28·5 per cent of its weight; and with four days' exposure, 36·8 per cent. After twenty-eight days standing in "stooks" it had lost 52 per cent; and after five months it had lost 58·8 per cent of its original green weight.

FILLING THE SILO.—It is advantageous to cut into the silo those varieties of corn which have thick stalks, in lengths of from $\frac{1}{2}$ to $\frac{3}{4}$ of an inch. Cut into such lengths there is no waste, and the stalks and cobs are all eaten up clean by the animals. Provision should be made for a fairly even distribution of the corn in the silo, while it is being filled, and for tramping the sides and corners most thoroughly. The weighting of the corn does not appear to be necessary or advantageous. After the silo is filled the surface should be levelled and thoroughly tramped; and after the lapse of *not more than one day* it should be covered to a depth of 6 inches with cut straw. If a foot of cut straw be put on top of that a few days later, probably no loss at all from waste ensilage will be found on the opening of the silo for feeding. The feeding should be effected from the top of the ensilage, and a quantity of the exposed ensilage should be raked from the top daily.

PART VI.—LECTURES AND ADDRESSES.

(1.) THE ECONOMICAL PRODUCTION OF BUTTER.

(Report of an Address delivered before the Annual Convention of the Ontario Creameries' Association at Brockville, Ont.)

Prof. Robertson said :—I find that these conventions are very great helps to me in my work. I find that it would be impossible for me to do the work that is expected of me, if I could not very often meet farmers in convention assembled, to discuss and learn from them their difficulties, as well as their successes. I think of the excellence of many of our farm products—our horses and our sheep, our cattle and our swine, our cheese and our butter, our wheat and our barley, and all those many things which we have in super-excellence in this country; and then I go back through the materials and products, and processes, and back through all the agencies, to find the real original cause of excellence. I find it in somebody's clear thinking, and in some thinker, who has solved some of the difficult problems of agriculture, and helped other men to use all the forces of nature for their service and good. Now, any one who thinks towards expression in painting, in music, in sculpture, in business, in war, in farming, has to work through agencies and by means of instruments. When a man takes hold of any task in the world, he requires some agent or agency, subordinate to and controllable by his thought, wherewith to effect any change for the better or the worse. And so if a speech or meeting will nourish the power of thought, and make it stronger and brighter and better, the farmer—every man—will be helped thereby. So far as a convention helps a farmer to be a better thinker towards expression in work and words, so far is it of service to him. You may load a man with information until he is so tired, that he will be nearly always tiresome to everybody else; but if you will help a man to think clearly, and then help him to think towards expression, he will bring thought to his work and do the world's work with head and hands. I have read somewhere a quotation from a very ancient author, written a long time before the birth of Christ, in which it is said: "To labour, the gods give all good things." That is a truth which holds good to-day. Every man in labouring should have first a clear comprehension of the object he seeks to obtain. Up in the garret of my house there is a very barely equipped carpenter shop. I never "waste" any time there, sharpening a chisel; I may spend some time in that way. I have heard a farmer say, "Oh, I could not waste a day in going to a convention." As the rubbing on a hone sharpens my chisel, so friction of minds in a convention, brightens thought and sharpens intellect. "As iron sharpeneth iron, so does the face of a man that of his friend," in friendly discussion of their common interests. The least serviceable of all tools is a dull mind and man. A plough does not create soil, neither does a cultivator; but these stir the soil up, and by stirring, they make it more fertile. A man's mind becomes fertile in great deeds, from educational contact with his fellows. Otherwise, it lies fallow, and fallow fields give a great crop of weeds, but never a great crop of grain until stirred up and sown with good seed.

I have put myself down to-night to speak on a most matter-of-fact subject—the economical production of butter. To some of you it will seem rather tedious, to have to endure such a subject, when you came for fun. I find that a great many men think butter-making to be a dreary, dreary, dreary, dirty occupation:—I mean the men who do the hard work of the farms. Let me show you the reason for dreariness of life on some farms. The farmer lacks information; he works in a wrong way, and works hard; he lacks confidence in his fellow-farmers and becomes suspicious; he stays isolated, and fails to reap the advantages of co-operation and mutual exchange of opinions and knowledge; he finds it hard to make a living and to make ends meet; and he listens to the harangues of the discontented who tell him that everybody's hand, head and heart are against him. Then he goeth about—in his mind—seeking some one to devour, instead of building up his own fortunes and

happiness and those of others, by turning his thought towards construction and production,—the economical production of butter. If a man has enthusiasm in his tasks, he will find them easier and more remunerative; and, if I could inspire any man or any boy with enthusiasm and confidence in the capabilities of his own business, and give him a chance and desire to spend his best powers with advantage to himself, he would have new hope in himself and for his country. Where you find a man who is enthusiastic, you will seldom find a grumbler. I never heard a man enthusiastic about his business, who complained about it. He is too busy trying to remedy the defects and improve its opportunities, to waste his time or strength complaining. I think the butter-makers who are always complaining and blaming something lying outside of the environments of their own business, for their future might very well improve the dairy industry, by going to the land flowing with milk and honey. Such men would be ashamed to live, if they were not afraid to die.

There is nothing sordid in economy. The economical production of anything, is the result of the application of the best skill to its manufacture. Men sometimes sneer at economy, because they think it has an element of meanness in it. I know men so mean that they will clasp both hands over two cents, and grip them so hard and continuously, that their fingers will be too numb to scatter the seed in spring time to get a good crop for harvest. There must first be a giving out, a liberal sowing, before there can be an abundant harvest for reaping with joy. It is economical to sow bountifully when the seed and the soil are good. Again, a farmer says: "I do not count for much anyway." True, alone he does not count for very much,—any more than any of us do. As an illustration of this truth I think of the littlest things in all the world, of which my mind can gain the least glimmer of intelligent conception. I think of a boy blowing soap bubbles. I watch one of them as it floats off in the air, with its beautiful rainbow colours, chasing each other in seeming frolic across its film. Then the film bursts, and I observe to see if I can perceive the tiny drop of water that composed the extended film. I fail; it eludes my eye,—there was so little of it. Then I think of the tiny molecules of water that make up its form, and wonder how small they must be. I think it is the great Tyndall who helps us out with this illustration:—If you take a soap-bubble and have it magnified to such tremendous tenuity that it would make a jacket for the whole earth, and then in imagination stand off and look at its surface, you see its component parts, apparently as large as number six shot. If you want an illustration of the might of these wee things, when moving in concerted action, go and look upon Niagara. The infinitesimally little molecules of water run up on the slender rays of warm sunshine—which beneficently and in spite of man's ignorance, apathy and error, are making the earth better and brighter. They float away in clouds, return again to the earth in rain, trickle down the hillsides, rush in torrents through valleys, run gleefully along the river beds, flow with imperceptible progress across the wide lakes, and then tumble in irresistible might over the precipice of Niagara. In their isolation, only molecules of water in all their single insignificance! in united movement, Niagara in its sublimity and unlimited power for service! Niagara's power to-day represents more than all the horse-power of all the engines of all sorts in use on the continent. When it is harnessed by man's intelligence, it may furnish driving power for much of the machinery of America. When the farmers are united in their efforts and directed by benevolent intelligence, they will not only continue to furnish humanity with most of its working power, but they will gain for themselves a just appreciation and recognition of the worth of the farmers and the farmers' work, in elevating the manhood of the race.

Now, in the production of butter it is always economical to recognize, that economy takes cognizance of a man's environment. We can grow oranges in Canada; we have an orange tree bearing oranges to-day in Ottawa, but it is in a conservatory. We cannot grow oranges economically in this climate. Many men try to go on doing something regardless of the natural conditions that they find around them. Now, we have in Ontario the conditions for an economical production of butter. We have first of all a fertile soil—a soil rich in all the elements of plant

food. We have a soil which gives the largest crops of forage plants in the world, with conditions to support all animal life in robust health. We have a capable people needing occupation, needing employment. Why should a man, living in Ontario, want to go off to Manitoba, or elsewhere, to get more room to spread himself on a great big farm? The money to-day is being made on small farms, by men who farm well and not by men who spread themselves over great areas, and farm poorly. We have markets calling out for fine butter all the time; and making butter will enable farmers to keep their land in good condition and give them and their families profitable employment. It is economy for the Government, for the people, to do all they can to extend the economical production of butter.

I need only stay a moment to say this, that the changing conditions of the markets require that a man should use his judgment, so as to meet these changes with an article that will meet the preferences of consumers. We are not responsible for having brought about many or any of the changes in the markets of the world and their competitions. I can go back very well and recall when the sending of the two large baskets of butter to the village store-keeper, affected the price, perhaps a penny a pound; and now we find within a few miles of that same spot, butter from New Zealand, from Ontario, from France, and from Denmark, all converging to and competing in the one market. We did not make the change, but the improvement and enlargement in the carrying facilities of the world, have made competitors of producers and countries far apart. These things have reduced the influence of the individual producer on the market to a very minimum. Therefore, it is a time for serious lamentation—for clothing ourselves in sackcloth and ashes, and blaming everybody but ourselves. But while we cannot control the marketing end of our business, which has been taken from us by the progress of civilization, the other end of it has come more and more within our jurisdiction and control. Better methods and more knowledge, have made it possible for us to reduce the cost of everything we sell; and, if we can control the cost, we can control the profit better than before. So it will always pay, to give special attention to the home-end of the business in the economical manufacturing of butter.

To do this requires the study of a few things. The people of the United States never did Canada so much small service as when they enacted the McKinley Bill, and put an almost prohibitory duty on hay. Farmers in the Province of Quebec this year, have to go over to the neighbouring counties to buy cows, and through their produce of butter and cheese, they will get more than they could have got by the sale of the primitive and raw material.

The following table shows the comparative exhaustion of the fertility of soil by the sale of one ton each of the different products which it enumerates:—

Article.	Nitrogen.	Phosphoric acid.	Potash.
	lb.	lb.	lb.
Wheat.....	41·6	15 8	10·4
Barley.....	32	15·4	9
Oats.....	38·4	12·4	8·8
Pease.....	70·6	17·2	19·6
Beans.....	81·6	23·8	26·2
Indian Corn.....	32	11·8	7·4
Hay.....	31	8·2	26·4
Clover.....	39·4	11·2	36·8
Potatoes.....	6·8	3·2	11·4
Fat Cattle (alive).....	50	31·2	2·8
Fat Sheep do.....	44	22·6	2·8
Fat Swine do.....	34·8	14·6	2
Cheese.....	90	23	5
Milk.....	10·2	3·4	3
Fine Butter.....	5	0	0

It pays to concentrate the products of the soil and sell the refined products that carry the highest value with the least exhaustion of fertility. It is a fact that in one ton of hay you will sell 87 times more from the soil than you will in one ton of finest butter, and you will get for the hay probably \$10 and for the butter \$450.

Then, in the economical production of butter it will always pay a farmer to remember that butter is merely a kind of food whereby a man obtains energy for work. If I move my arm I rub off some of the material of my muscles—the friction has worn some off. I need something in my food to repair the waste of tissues in my body; besides, I need a supply of energy that will make it possible for me to originate and continue motions and perform the functions of living. There is nothing in fuel that will repair the waste of the cylinder of an engine, but without the fuel you could not get the motion. What does that mean? You get all energy in all food and fuel from the old sun. He streams his rays down on the earth and on and into the plants, which the soil carries. He rolls his strength up into plants, as I might wind my strength into the spring of my watch. A plant may then become food and fuel. It is economical practice on the part of the farmer to elect for his fields the plants which can serve him best in that capacity. The sun can store more of his energy during a single season's growth into the corn plant than into any other plant that grows easily in Canada. A corn stalk furnishes to the cows more energy than any other plant. Then you get this energy transmuted into butter, and you have "materialized sunshine," energy to supply force for your work. There is economy in that method of getting the sun to serve you by means of cornstalks, cows and butter. For this reason I think that every man who helps to make a farmer have increased faith in the value of cornstalks does a service to his country. The wealth of the Western States has come practically from two sources—from the sun and from the minerals—from the sun through the cornstalks, which in various forms of derivative diet has furnished the energy to dig up the minerals. You need not try to "bamboozle" yourselves into thinking that wealth comes into existence without somebody's effort.

Then, in the production of excellent butter, the farmer needs to have good cows. I have a great deal of respect for a good cow. I have a good deal more respect for some of the cows in my stable than I have for some men. If you will treat a cow properly she will give back an equivalent for what she gets. She is, therefore, honest and will pay for her way through life. I will hunt with a microscope in the careers of some men to see what they have given to the world of valuable service and I cannot find it. A cow sometimes does get more than she gives. I would not spare that cow. Put her on the block; get your money out of her in that way. You think of cows as boarders, kept for the profit of the man who keeps the boarding-house. Did you ever think of a man keeping a boarding-house, running on the general satisfaction plan, saying that if he does not get enough from one boarder to pay for his keep he will get it from the others? No; he expects to make a profit on each one of them. The farmer should act in that way towards the cows. There is advantage from watching the cows and selecting the best of them. It is not so very hard to do, and most cows are capable of paying for their board in full, if they are given a fair chance. But, if they are brought up the wrong way, they are sure to go astray—just like boys.

Some people have a preference for a large cow. To my mind, if I wanted a cow to consume more food than she will give a return for, I would like an immense animal. If I wanted her to pay for her board, I would just as soon have a small one. I believe I would rather have a small cow than a large one, if she will give the same quantity and value in her milk. Then there is a notion that the bigger the cow, the better the quality of her milk. This is not so. I have faith in the quality of goods done up in small packages.

I want to tell you what selection has done. The Hon. Thomas Ballantyne—a man who has done more to advance the dairying interests of Western Ontario than any single individual I know—spoke lately in my hearing, and he stated that one cow in his herd last year gave 12,000 pounds of milk; another gave 11,000 pounds

in the season. They furnished milk for cheese-making during the summer, and for butter through the winter.

It is possible for a farmer, by judicious selection and feeding, to enlarge the capacity of the cows in his herd. Mr. George Allan, who lives near Ottawa, is an excellent farmer. He had four cows in 1888, which gave only 78 pounds of butter each. He began to grow cornstalks, and feed these with a little bran, and in 1889 they gave 131 pounds each, and in 1890 his cows gave him 204½ pounds of butter each. See the enlargement of capacity, and therefore an economical production. It is possible to enlarge the capacity of the cow and thus reduce the cost of production. That belongs to economy, and the wise man is economical always, because to be otherwise is waste; and waste is worse than folly.

Economy in the production of butter involves doing something during the long winter season. I know very few men who get all they want to get by working five months in the year. Most of us have to work twelve months of the year. I would have my cow work as long as I have to work myself. If you make a heifer with her first calf milk ten months, you create the tendency in her to keep that up, and in a short time you will have established a habit which will be transmitted to the progeny. I will find you herds of cows where they do not go dry at all. You may take these few facts away with you, that if the cow begins the milking season in the fall of the year, instead of the spring, she will soon give 30 per cent more milk within the twelve months; she will give you milk during the winter, when it is worth, on an average, 50 per cent more money; (and by the closest kind of calculation, it does not require more than 25 per cent more food to keep her milking than dry, if kept in proper condition in both cases); it will make it possible to keep a larger number of cows on the same farms. Cows milking through the winter will provide a great deal of skim-milk, for the raising of better calves, which means richer fields and more prosperity all around.

I have a great deal of faith in the capabilities of winter dairying in creameries, to furnish means wherewith to banish almost every economic evil of which the farmers complain. I have no faith in this practice, or any other practice, to bring economic salvation, except by the action of the farmers themselves. I have no faith in their industry being propped up. I have faith in their building it up, together with the prosperity of this country, and thus working out their own betterment of circumstances.

Sometimes people say to me, "If everybody went into this industry of winter dairying, where would the profit come from?" Well, a great many people, who do not want to do what is right, excuse themselves by thinking that they would strive to enter by "the straight gate" and walk in "the narrow way"—but they are afraid of making a crowd and keeping somebody out. You will never find any way to real success but the narrow way. The best way is always the narrow way. I do not care what line you are trying to follow up; and, because it is narrow, it will never be crowded—not because of lack of room at the gate to get in, but because of lack of heart and courage, and continuity of purpose and effort.

I have spoken quite long enough on the economical production of butter from the farmer's standpoint, without saying a single word about the manufacturing process. However, I will say a few words about that now. It is never economical to produce poor butter. A pound of butter which will not fetch more than 11 cents has cost somebody just as much as a pound of butter which will sell for 25 cents. It is always economical to help the cow to produce a large quantity of butter fat in her milk, because five-sixths of the butter is fat, and one-sixth water and curd. Now you will not forget that the elaboration of milk by the cow is a most mysterious and exhausting process. It means exhaustion of the nervous force. If you have a cow that is abused, kept out in the cold, ill-fed and uncomfortable, she will give you less butter-fat, invariably, than one that gets better attention. In butter-making it pays always to be a gentleman. Our folks in Canada are getting to "size a man up" by

the clothes he wears. That is a poor plan to discover a man's gentleness or greatness. I believe in the meaning of the word in dairying and elsewhere—a man who is gentle and tender and strong. Now, if you will be harsh and cruel with the cows, you are no gentleman; and you will get only a rough man's pay from them.

Then, after the milk is made by the cow it is always economical to have the best process provided to get the butter-fat out of the milk. After the milk is set, if left at rest, its globules of fat which are held in suspension easily rise to the top. Stillness and coolness are two conditions required.

Because many of the patrons of cheese factories use the cheese factory cans for setting milk in, after the factory closes, so as to get a large share of the cream for butter-making, I have had some tests made to discover their suitability for that purpose. I have found the loss from deep-setting in common factory milk cans to be six per cent greater than when the milk was set in ordinary shot-gun cans.

Then, I set the milk at temperatures from 98 degrees down to 78 degrees, putting the cans in ice water, and found no appreciable difference when milk was set immediately after milking.

I have set the milk immediately after milking, and one hour later, and have not been able to avoid losing 11 per cent additional of the butter-fat by the delay of one hour in setting. The slowness of a man is contagious—it affects the fat globules in his milk.

Then we have set the milk for periods of 11 and 22 hours respectively; and in the 11 hours' setting there was an additional loss of 8 per cent by the shorter period of setting.

We have added water at different temperatures, from 160 degrees down to 60 degrees. I found no appreciable difference from putting water in the milk in deep-setting pails.

Then in setting tests with cows at different periods of lactation, averaging 9, 6 and 2 months, we found by the use of the deep-setting pails we recovered only about two-thirds of the butter-fat from the milk of cows which had been milking from five to twelve months. For four days we set the milk pails in water at 38 degrees with the milk when set at a temperature of 78 degrees; and the loss from milk of cows that had calved nine months was 28 per cent; from that of those that had calved six months 21 per cent; and from those which had calved two months 13 per cent of the butter-fat unrecovered.

For four days the milk was reheated to 98 degrees, and set in water at 38 degrees, the loss from the milk of cows which had calved nine months being 34 per cent, from the milk of those that had calved six months 24 per cent, and from that of cows which had calved two months 12 per cent of unrecovered butter-fat.

In shallow pans we obtained better results from the milk of cows calved more than six months than by any other method of setting.

Many farmers say that by the whirling process of a centrifugal machine you cannot get all the butter out. If a cow has calved more than six months, by the use of the centrifugal cream separator you will get over 20 per cent more butter from the milk than by the ordinary deep-setting method. If she has not calved over two or three months you will get about 10 or 12 per cent more butter.

Then, we have been trying the effect of heating milk, to remove that offensive odour which is caused by the feeding of turnips. When we heated the new milk to 150 degrees we have not been able to quite eliminate the odour.

Then we have heated the cream from other milk to 150 degrees. A few years ago it was thought that if you heated the cream above 90 degrees you would burst the globules of fat, and spoil the butter. That is not the case, and by heating the sweet cream to 150 degrees we have quite eliminated all the odour of turnips. The butter seems to keep better, and we got one pound of butter from one pound less of milk than we got by not heating the cream.

A common complaint that comes to us by mail is, that "the butter won't come." Well, the butter will come, if the cream be churned at a proper temperature. I have put the limit of time for churning at 35 to 40 minutes. I heat the cream just high enough to make the butter come, after about 35 minutes of agitation.

I find some people complain that there are specks in the butter. If you allow the vessel containing the cream to be exposed to the action of the atmosphere, a part of its moisture will evaporate, and a scum or skin will be formed on the top of the cream. That will be broken up by the churning, and you will have merely small portions of thickened, dried cream in your butter. Prevention is better than an attempt at cure. Let the cream vessel be covered, or by frequent stirring prevent the formation of the skin of dried cream. The straining of the cream into the churn is also a necessary measure for keeping specks of thickened cream or curd from finding their way into the butter.

Occasionally, butter-makers find the butter full of streaks. That condition may come from the retention of portions of the butter-milk in the mass of the butter. The addition of a quart of water for every two gallons of cream, after the granules of butter begin to appear, and before the churning is completed, will help to bring about a speedy and full separation of the butter-milk. When the butter-milk has been removed, the granular butter should be washed with cold water. In summer the temperature of the water should be about 55 degrees, and in winter about 60 degrees. For the washing, the churn should be revolved a half faster than for the churning.

A streaky condition of the butter sometimes results from an imperfect mixture of the salt with the butter. Re-working, after the salt is dissolved, will correct that. Fine-grained salt only should be used. The presence of salt should be perceptible to the taste, but not to the sense of touch.

Attention to these few points which I have mentioned will assist you to produce butter economically; and, if the butter be produced under the direction of skilful men in creameries, the labour will be very much reduced, and the profits of every farmer may be increased. At Woodstock and Mount Elgin we have turned the cheese factories into creameries for the winter months; and the farmers there find it a profitable business to send their milk to the factory for butter-making during the fall and winter. I think in Ontario next fall you will find at least 25 cheese factories running as butter factories for the winter. Thus, you will have a more economical production of milk and butter and cheese.

I have to ask you to believe that these little helps and points of information, which you derive from these conventions, do not constitute the sum total of the good which they do. The far-reaching influence of any movement for good is seldom recognized at its beginnings. When the sun shines, the blades of grass, which immediately spring up, do not comprise all his beneficence. Soil is warmed, seeds are germinated, the water for showers is lifted up, and a thousand gladnesses and goodnesses are quickened into being, although at the moment unseen. When the wind whistles through the trees in autumn, many more leaves are loosened than those which let go at once. If only a few prejudices and ignorances yield at first to the truth, let us keep on working for the improvement and enlightenment of the farmer's mind—for the economical production of butter and the gaining of every economic and material good, which the heart of man can honestly and honourably desire.

(2.)—THE POSSIBILITIES OF SELLING CANADIAN FARM PRODUCTS AT A PROFIT IN THE ENGLISH MARKET.

(Report of an Address delivered before the Farmers' Central Institute, Toronto, 2nd February, 1892.)

Professor Robertson addressed the Institute on "The possibilities of selling Canadian Farm Products at a profit in the English market," as follows:—

MR. PRESIDENT AND GENTLEMEN:—It would be easier for me to address an audience of politicians than an audience of representative farmers. Politicians look mainly for phrases in speeches; farmers expect reliable information and thought.

Your president has wisely said that you are a lot of excellent men; and that always puts a speaker on his mettle. He is embarrassed (at any rate I am), lest he should fail to instruct, and he is diffident lest he might fail to do justice to his subject. With your president and yourselves, I am exceedingly sorry that the Minister of Agriculture was not able to come here. On Saturday Mr. Carling telegraphed that he was too ill to be present in Toronto, and asked if I could go and give an address, not for him, but instead of him, on the possibilities of selling Canadian farm products at a profit in the English market. He also desired me to express to you his regret that illness prevented him from participating in this meeting.

A subject so great, so important, so far-reaching, would give a man all the task he could very well overtake in a whole year—to enquire, to examine, to read, to collate, to digest, to conclude and to direct. So, if you have some rather imperfectly digested statements, you will please remember that wholesome digestion takes time; and I was not willing to imperil the comfort and health of my own mental digestive apparatus by trying to chew up too many facts and give them out in an unnatural way. You will be good enough to give me your consideration and indulgence this morning, seeing that I have hardly had time to fit myself to present my subject worthily to an audience like this one,—representative of the best thought on agriculture in the Province of Ontario, the premier province of the Dominion of Canada, where the average farmer stands head and shoulders above the average farmer in any land in the world. (Hear, hear.) We have many things in this country to be grateful for and proud of. In “the old land” they have, so they claim, a better system of agriculture than prevails generally within our borders. They have had the educated classes, the men trained in sciences, arts and philosophies, the aristocracy of the land, to make plans for the toiling farmers; and the clear thinking of these men has put England away ahead of all other lands in regard to all farm and animal products, which are so essentially the product of clear thinking. Where do we go for thorough-bred horses? To England. Where do we go for thorough-bred cattle? To England. For thorough-bred sheep? To England. For thorough-bred swine? (A voice—Do you include Scotland?) Wait a moment. I say to England, and for me, this morning, England stands for and embraces all of Great Britain. Where do we go for thorough-bred men? Now, my friend, your question. (Laughter.) I have been referring to these matters for this object only, to show that the clear thinking of trained men of strong intellect has raised the quality of her agricultural products, until England sends around the globe the foundation and improving stock and seeds for the enterprising farmers of all countries; and her farmers do that, notwithstanding the fact that she has no surplus of ordinary farm products. England affords the best market in the world for food products,—acknowledged so by everybody; still she sends the best foundation stock for food products from her island to the uttermost parts of the earth, from the clear thinking of her men. The average farmer in Canada is a better farmer than the average farmer in England. He does not want or need an educated class to stand aloft and aloof and say, “Do so and so.” He does not want to have one man as the master, to do the thinking, and the other man as the hind, to do the working; but he, in himself, has the opportunity (which farmers in other lands have not in an equal measure to-day), of governing the products of his own hands, according to the direction of his own mind. He, more than most others, is the man who has the right to think for himself, the man who has the need of thinking for himself, and the man who has the opportunity, in our country, of giving expression to his thought, through his work as well as his words. The meaning and promise of this meeting are, better stock and products of all kinds, better prices for all kinds, better work of all kinds, larger profits of all kinds, from the clear thinking induced by discussion and the dissemination of knowledge. The friction of mind on mind is highly beneficial; as iron sharpeneth iron, so does the face of a man that of his friend in friendly discussion of their common interests. So, what I have to say this morning is to whet the keen edge of your minds, that you may be able to cut through difficulties easier and more successfully; and, having dispelled many imaginary

objections and obstacles, you may see your way to seek, suit and keep for Canadian farm products the best market or markets in the world,—let these be in England or anywhere else. When a man sees well, he can follow his own judgment without danger of stumbling.

But to come to my subject more particularly and concisely: upon the welfare of the farmers of Canada depends the prosperity of the Province of Ontario and of this Dominion which we love so well. Everybody says so, and many of them say it with a feeling of generous good nature, that they have paid a compliment to the farmer in thus elevating his calling. The importance of agriculture in Canada is prime; it stands first, because all other industries in the country are very sensitive to the condition of the farmer. If he be experiencing hard times, every other industry and interest suffers and is depressed. When the farmer has good times, every other industry and interest is bounding with prosperity. The farmer's success comes mainly from good crops, good prices and good crops come mainly from good cultivation, good management and good weather. The farmer can control two of these, and in the third, we are more bountifully dealt with than most countries in the world, in point of weather, favourable for the growing of large crops, of fine quality. Still, I am not to detain you on these aspects of the farmer's business to-day, but on the marketing end of his calling. It has been very often my privilege to meet representative gatherings of farmers, to discuss with them some aspect of their own business. It has not required any conscious effort on my part to refrain from discussing the question of markets, near or far off. I have not felt called upon to give utterance to almost a single sentence of direction or advice to the farmer concerning the market end of his business. I have been trying to direct the farmer's attention to the home end of his business, the end where his profits are mainly made. The profits are mostly made within the sphere of the man's business, where he can exercise appreciable jurisdiction and control; and the market end of a man's business is subject to the influence if not under the control of all the producers, as well as the buyers in the whole world.

In my humble judgment, public speakers, the press, politicians and other leaders and teachers of the people, have directed the attention of the farmers all too often and much too emphatically to the marketing end of their business. That mischievous course has resulted in leaving on the minds of many farmers an impression (and I would like to have a chance of making the only impression on your minds that is to be made just now), leaving on the minds of the farmers an impression that a market, the market, every market, has some sort of personal, self-contained existence; in fact, that a market is to the farmer of Canada what a deity or devil was to the heathen,—some external power or existence that could bring happy deliverance or wreak dire destruction at mere caprice. A market has no such power, no such functions, has no such existence. Some of the farmers have been even further misguided, in so far as they have been led to imagine that the market, a market, any market, can be charmed into sweet serving by the wand of politicians, or can be chased away beyond touching, tasting, handling or seeing, by their edict of hostility. The markets for farm products—and the moon,—are, in some measure, amenable to the edicts of some politicians.

A few observations, here, may be offered in all simplicity and candour, as to how I think the farmers should regard the markets, which ones I think they should seek to suit, and what services they ought to expect from them. I desire to discuss this wholly from an economic standpoint, not partizan, not political; because I have neither partizanship nor politics, except for profitable agriculture. A preference for a market, a preference for selling in a market, a preference for buying in a market, may have a sentimental basis as well as a purely economic one. There are men from whom I would rather buy at the same price than other men; there are men to whom I would rather sell than to other men. Sentiment accounts for a great deal that we do in business, and other affairs. A market is merely a name for an exchange of commodities, such as eggs for sugar—a market; butter for groceries—a market; wheat for clothes—a market. Money is used as the medium of exchange,

according to certain values mutually agreed upon. Money is a medium for facilitating the transactions of marketing; it does not create a market. Marketing is exchanging things; getting money is another question altogether; marketing is exchanging things always. A market has come to be almost wholly a place for the exchange of products for money. It is unwise to use carelessly the terms "producer," and "consumer." Many men get all kinds of mists around their judgments, because they hold that a farmer is always a producer, and a townsman is always a consumer. A farmer is a consumer and a customer—he is a consumer of binding twine, of cottons, machinery, furniture, and a score of other things. A farmer is as much a consumer as a townsman is. He eats as much, man for man, and works as much, man for man, and lives as well, man for man. And the man who lives in town, if he is honest and earns his living, is as much a producer as a farmer. There is no such thing as honest, intelligent, non-productive labour in the town or the country. I want a suit of clothes, or a collar, or a pound of tea, or a legal opinion, or a pair of shoes, or a sermon, or candies, and somebody must produce and furnish these things for me. I am a consumer, as well as a producer, although I live on a farm. A farmer is essentially a food producer; that is his proud title; and when he gives in any form a food product in exchange for money or other commodities, he markets his farm products—essentially and mainly his food products. He has also other things to dispose of, of which he may justly be called a producer, such as horses, wool and wood. Wood is a farmer's product, in the sense of it meaning a commodity increased in value by the farmer's toil and grown on his fields. The marketing of these things is not different in its nature from the selling of food products. In the market, the farmer needs to meet the customer or consumer, who wants what he has to dispose of, and who is willing and able to give him a good exchange. A customer or consumer, on his part, wants to meet a seller who has what he wishes to procure. If another man has in abundance already what I have to offer for sale, why should he want what I have to sell, except to re-sell it at a profit which I would rather obtain by selling direct to the ultimate consumer? A most advantageous quality in the market is, that the customer should be the man who ultimately wants to use the article which he buys, lest in the meantime another party should step in and get part of my profit as producer, and part of his price as consumer, and thus raise the price to him and lessen the price to me. If there be only two individuals, a seller and a buyer, and they cannot agree upon the terms of exchange, no business will be done. If there be two sellers and two buyers, then the one seller's opinion and judgment is not the only factor on the selling side of the problem of price. The other man's competition may make him change his mind; and I want to show you the meaning of that. John Brown takes to town a load of cordwood and says: "I will get \$4.50 a cord or I will take it home." John Black is the only man who wants cordwood that day. He says, "I will buy at \$4.25 a cord, and if not I will wait until to-morrow." John Brown does not see anybody except John Black, and he takes the cordwood home. When he goes to the market next day, he finds four other men with cordwood there, and four other buyers who want cordwood. John Evans says, "I would rather take \$4.40 than take my load home," and, if he sells it at \$4.40, it weakens the judgment and determination of the other men to hold out for \$4.50. It subjugates the individual judgment to the common judgment of the whole of the sellers and buyers. There is some difficulty sometimes in understanding what is called the law of supply and demand. It is nothing more, in my judgment, than the general consensus of opinion of all buyers and sellers as to the relative values, at a given time.

You will bear in mind there are three-fold competitions in markets: a competition between buyers, which tends to raise prices; a competition between sellers, which tends to lower prices; and there is a third competition which is often forgotten—that between products for preference in the market. It is not hard for an excellent quality of anything to displace a poor quality at the same price. If we in Canada, in looking at this question squarely in the face, could induce more competition from buyers, the tendency would be to raise prices. If we in Canada can improve quality,

so as to furnish better goods, the tendency will be to displace other products of other countries, get higher prices for our own, and get control of the market. The course for us in our own markets is to induce competition from buyers, to improve quality, and, as far as possible here, to avoid competition between producers. Now let me show you again: Tom Brown and John Black have produced fifteen pounds of butter each; the local markets at their village will take ten pounds from each man. Both men have a surplus to send somewhere else. Then, these five pounds of butter from each meet elsewhere in competition. They are competing again at the other end where these five pounds go. If by any means Tom Brown can provide another market for the five pounds of his own make, or the five pounds of John Black's make, so that it will not meet his in competition, nor displace in the market any other five pounds which can meet his in competition, it will be to the advantage of all producers of butter. If any man who produces can get exclusive control of a market, it will be easier for him to get the highest price which the market will afford. Nations, acting in their collective capacity, are to be considered as aggregations of individuals,—John Browns and Tom Blacks,—and if you will find a principle that will apply successfully to the business of John Brown under given conditions, it will apply successfully to the business of the biggest nation on earth under like conditions. A principle is like a law of the universe; it does not adjust itself to individuals; the individuals and nations that accommodate themselves in conduct to right principles will flourish best. Let me apply a few principles to markets, and I will apply them to nations and measure the wisdom of their actions, according to their conformity to these principles. Nations, like individuals, need customers, who want to use, as ultimate consumers, the surplus of goods which they have to sell. In the market we look for and expect certain things—

1st. Accessibility to customers.

I have an aversion to tolls on the way to market. It bothers me when I have to take out my pocket-book on cold and wet days to pay them; it is disagreeable as well as expensive. If there was a market at the end of a road with a toll on it, and another market at the end of another road with no toll on it, I would go to the market which was reached without a toll. You can call a toll anything you like, but it stands between me and my customer, and takes something from me or my customer.

2nd. I want in the market a permanency of adequate demand. Commerce is always shy; she is shy of uncertain markets. Commerce, like most girls, is very coy, and wants a little coaxing.

3rd. Then, I want a fair chance in competition in the market.

4th. I want discrimination as to the quality of goods. If I think my goods are better than another man's, I wish to get a better price, so as to encourage me to go on doing that style of business in production.

Accessibility by good roads, railway and steamship lines included; no tolls if you can help it; permanency of adequate demand, so as to avoid the irritation that comes from uncertainty; a fair chance to compete with other goods in the market; discrimination of quality that will induce each seller to go home and do better next time; these are the qualities that you want in the market to which you take or send your products.

The buyer in a market has particular wants, and, if I do not look after them, I will be a fool, for it is he whom I want to please with my goods. The requirements of an available market must be studied. If a man went to Ireland to sell badges on the occasion of any public festival, and had the badges all of a red colour or a blue colour, he would not sell many, even if they were of good material and cheap; but if he had them of green, he would sell them freely. He would be required to study the wants of his customers, or the prejudice of his customers, or the preference of his customers, and cater to their tastes. If you do not do that, you cannot keep any market, even after you have obtained it. The market must be studied and suited, to be kept. It takes time to get a demand; it pays to study to create a demand, to overcome prejudice, to win a preference, which is always a decided advantage.

I went into a shop in Scotland, a good many years ago, in which Scotch Cheddar cheese was retailing at sixteen cents per pound, and Canadian Cheddar cheese was retailing at twelve cents per pound. By all the rules and standards of nourishing qualities, wholesomeness, taste and appearance, the Cheddar cheese from Canada was worth four cents more than the other; but the prejudice of the people made them willing to pay four cents a pound more for an inferior quality. We have reversed that now in some measure, and have won a preference for our goods. It is a big thing to have a preference in your favour, and it is a bad thing to have a prejudice against you.

Does the English market meet these requirements? The English market is accessible. I shipped fresh-made creamery butter from Woodstock, Ont., last week, to Liverpool, for 55 cents per 100 pounds for freight charges. It will have cold transit all the way, with no depreciation in quality. Can you send butter from your own place, twenty miles back from the city, to the market for less than half a cent per pound? From Woodstock to Liverpool it costs me 55 cents per 100 pounds. The market is permanent. There is an adequate demand. England is the largest importer of food products in the world. Then there is a fair chance in competition in the English market, and there are not any tolls. John Brown lives in Oxford county. They have tolls in Oxford county. Another man, Tom Black, lives in Middlesex county, where there are no tolls. John Brown takes to market a ten-pound basket of butter, and it costs him on the road two cents a pound for tolls. If the butter sells no dearer in Woodstock than in London, the Middlesex butter-maker would have the better chance to make marketing butter pay, by at least the two cents per pound of toll money. England does not have any tolls on farm products.

Then, there is discrimination of the keenest, sharpest kind. The English market will pay to-day for cheese from three cents up to seventeen cents a pound wholesale—discrimination! It will pay for butter from six cents to thirty-one cents—discrimination! That is the kind of a market I want. I do not want a market where everybody gets the same price, whether the quality be excellent or poor. That treatment tends to discourage the efforts of the people towards improvement in quality, which alone can give permanent success. Then there is the competition between buyers of the keenest kind. Napoleon, a good while ago, said England was a “nation of shop-keepers.” If you have a nation of shop-keepers, they, for the sake of profit, will compete; and the competition will always push things to the very verge of maximum price. England has been called a nation of shop-keepers; she is a nation of shop-keepers and food consumers—shop-keepers to compete for, and food consumers to use what we have to sell. We are a nation of farmers, a nation of food producers. We have food to sell; they want food to buy; they have a good, ready, permanent demand, competition and fair play; I want to sell there, if they will treat me in that way.

The possible profit from production does not all reside in the market price. The enlarged and improved carrying facilities of the world have made competitors out of men who are far removed from each other in geographical location. At Woodstock, Ont., in the production of butter, I am a competitor of a man who is on the other side of the earth, in New Zealand. It was not always so. I can take you back to a little shop in Scotland, where we used to send butter made on the farm; a few other farmers were then our only competitors. But you can go there now and buy American and New Zealand butter, and the New Zealand dairyman meets me there and has become my competitor. It is not of my will that it is thus, nor only of his will. It is the progress of civilization and the progress of humanity that have made competitors out of producers all over the world; and we cannot help ourselves. Since I cannot control the market price of my products, my profit at that end is an uncertain quantity. Profit always comes between the price obtainable and the cost of production. If it costs me here fifteen cents per pound, and I can sell there for twenty cents per pound, I have five cents of a margin for profit. If I can reduce this fifteen cents of cost, by the application of good business methods, to ten cents, I lengthen my line of profit at the safe end of the business, where nobody

comes in to interfere and prevent me from getting it. Therefore, the main profit is made at the home end of a man's business, which he can control. The home end of a man's business, in every sense, is the one which he should look after most.

The food products from the farms in Canada are mainly eaten at home in our own country. I want to show you the gain in market capability and market capacity in ten years. The growth of population who eat food, but who do not produce food, in ten years has been 384,146. That is the increase in the population in cities, towns and villages of over 1,500 souls each. These people consume the farm products of Canadian farmers, at wholesale farm prices, to the amount of \$21,000,000 annually. We send to England and the United States now, of the same things—farm products—leaving out horses and hay, to the value of \$35,955,986 annually. Our whole export from Canada last year, ending 30th June, 1891, to Great Britain and the United States, in farm products—except horses and hay—amounted to that sum. The total export to the United States of the same things in the same time reached the value of \$10,017,390. The extra people that have come into the towns of Canada in ten years buy from Canadian farmers twice as many dollars' worth of their food products annually as we send to the whole of the United States. That means a good deal. I do not like anybody that tries to create a feeling of antagonism between the townsman and the countryman. The townsman is a customer of the countryman and the countryman is a customer of the townsman, and there should be no antagonism. If their interests are not identical, they are, at least, harmonious. All efforts to create distrust and dislike between the agricultural and manufacturing interests should be refrained from. As the towns grow, the country makes some progress; they mutually benefit each other.

Suffer a few words as to the kind of farm products which we can sell anywhere, with advantage to ourselves as farmers. We have in Canada only so much of certain valuable elements in the soil, and when we sell off any farm products we sell off some of these things. The constituents in the soil which are essential to plant growth, and which in many places are becoming scarce, are nitrogen, phosphoric acid and potash. If a man sells a large quantity of these things for a small price he impoverishes his farm.

Nitrogen, phosphoric acid and potash in one ton each of some farm products:

	Nitrogen.	Phosphoric Acid.	Potash.
Wheat.....	41.6 lb.	15.8 lb.	10.4 lb.
Barley ..	32	15.4	9.
Oats.....	38.4	12.4	8.8
Pease.....	70.6	17.2	19.6
Beans.....	81.6	23.8	26.2
Indian corn	32.	11.8	7.4
Hay.....	31.	8.2	26.4
Clover	39.4	11.2	36.8
Potatoes	6.8	3.2	11.4
Fat cattle, alive	50.	31.2	2.8
Fat sheep, alive.....	44.	22.6	2.8
Fat swine, alive	34.8	14.6	2.
Cheese	90.	23.	5.
Milk	10.2	3.4	3.
Fine butter .....	.5	0	0

In every ton of barley the farmer sells 32 pounds of nitrogen, 15 and one-half of phosphoric acid and 9 of potash. If a man will persist in selling a ton of hay and a ton of oats—the two tons for \$30—he will sell as much of the elements of fertility off his farm as he will dispose of in two tons of fat swine for \$200. If he sells fat beef, he will sell about one-half more for \$200 than he sells in the other case of primitive products for \$30. If he sells cheese, he will get for the cheese \$200 a ton, and sell less in one ton than in two and a half tons of hay for \$25. If a man will sell a ton of hay for \$10 he will sell about 87 times more out of his farm

for that sum than he will for \$500 in butter at 25 cents per pound. Cheese is more exhaustive. Fine butter is nearly all carbon, but strong butter has some nitrogen in its ammonia. Strength acquired in that way has not any money value.

I will read to you for a moment the judgment of the Department of Agriculture of the United States of America on this question, from an official publication in December, a year ago, as prepared by the Hon. J. A. Dodge, official statistician of the Department of Agriculture at Washington, and since issued under the authority of the Hon. Mr. Rusk, Secretary of Agriculture:—

“Competition in production leads to excess or surplus, which tends to reduction of price. Competition can be stimulated to strengthen demand, both in domestic and foreign trade. The former is the wider field, because occupied exclusively; the latter is a supplementary resource of great importance. We possess the markets of this country, and propose to keep them; we may share, while we cannot monopolise foreign markets, at least so far as to supply deficiencies in foreign production. At your request, I will assume the task of indicating the extent of foreign wants, and the means by which a larger demand for dairy products may be enjoyed.

“In seeking a wider movement of these products towards the markets of the world, I would not for a moment encourage the delusion that the exportation of the crude and bulky products of agriculture can be indefinitely extended or made profitable in foreign trade. That idea is held and promulgated either in ignorance, or for a partisan purpose. The hay and forage from nearly 200,000,000 acres, representing great values, we could not export if we would, and should not if we could. Vegetables in their crude form are ineligible for exportation. When corn is worth but \$8 a ton, it is folly to pay for transportation four or five thousand miles, in preference to shipping it in beef worth \$180 per ton, in cheese at \$200, or butter at \$280. Our agricultural exports are practically confined to cotton and tobacco, to meat, breadstuffs and dairy products. The cotton is worth as much as cheese, or \$200 per ton. Tobacco averages \$180 per ton. Wheat with a value in the garner of only \$30 per ton is not worth shipping to meet the competition of the rudest and lowest agriculture of the world, and its exportation will gradually decline. It is only sustained now by the exigencies of a primitive and slovenly system of agriculture.

“It is not merely the cost of transportation, which railway development has cheapened extraordinarily, that should bar this foreign movement of primitive products, but the reckless waste of plant food, tending to rapid sterilization of the soil, and consequent reduction of its rate of yield. We are learning slowly the avoidance of this waste; in cotton, by making oil of the seed and feeding the oil-cake, exporting only the fibre, which contains little that is exhausting to fertility; in wheat, by milling and retaining the bran and shorts for the use of the dairyman and other feeders; in corn, by transformation into pork, and returning to the soil a large proportion of its elements; in milk, by sending only cream to butter factories, and retaining nearly all that proves exhaustive. We cannot afford to export, or waste otherwise, the fertility garnered in a thousand years of growth and decay of vegetation. It is the capital of the farm that should be held as a sacred heritage for the use of the future generations, and not squandered prodigally, but increased by every means offered by scientific agriculture, both for prospective personal profit and the prosperity of our descendants. Such recklessness is the suicide of thrift and the annihilation of the birthright of prosperity.

“The lessons to be learned, therefore, relative to the extension of foreign trade, are two, viz.: That the expense of transportation should be minimised by the selection of products of high value in proportion to weight, and the loss of fertility should be avoided by the exportation of carbon, rather than nitrogen and phosphoric acid. This course not only conserves fertility, but simplifies the transportation problem.”

I will speak a little while on the possibility of getting a profit in the English market from selling animals and their products. Let me tell you what quantities have been imported by Great Britain, which will show the extent of the market opportunity

for these things during the past year. The exports of animals and their products to Great Britain from Canada in 1880 amounted to \$11,104,223. In 1890 these had risen to \$18,578,722, and last year, to 30th June, 1891, they had risen to \$19,840,492. In eleven years we have gained in sending these things to the English market from eleven millions of dollars to nearly twenty millions of dollars in a year. That shows where our food products in the form of animals and their products are going. We sent to the United States, during the same period, of the same things, in 1880, to the value of \$6,016,988. In 1890 these had fallen to \$5,966,474, and last year we sent only \$3,148,463 worth. That shows a decrease in the exportation of these things to the United States, and an increase in the selling of these things in the English market. For why? Do you think that the people of the United States are blind to the teachings of their own leaders? They are seeking a foreign market themselves for the same things, and they are meeting us on the English markets with them; therefore, they do not need ours. They do not want ours, unless to get them and make a profit from the handling. Great Britain recognizes the advantage of producing on her own farms more animals and their products; and in the last two years they have increased the cattle which they have by 11.6 per cent, the sheep and lambs by 12.1 per cent and the swine by 15.1 per cent.

CATTLE.

The imports of cattle from Canada last year, ending December, 1891, into Great Britain, were 108,289, and the value was \$8,623,202. The oxen, bulls and cows averaged \$81.40 each at the landing ports. Freight, including landing charges, cost about \$28 per head. If the farmers of Canada cannot make a profit in fattening steers and selling them at \$53.40, on the average, each, they have only one alternative. They cannot lift that market; it is a market of 507,407 cattle, imported at a value of \$41,673,659. If they have not made a profit selling at \$53, they can do so now by reducing the cost, by the growth of fodder corn and the feeding of ensilage.

Then we have an advantage in selling cattle to the English market, in that our cattle can go alive to all the inland towns of Great Britain, and that is worth from \$2.50 to \$5 a head to us, above all other competitors, who are barred from doing that. We can send at an increased profit by improving the quality of the animals. We do not want these great, long, thin, tall animals that some men want to breed all the while. In the English market you will get about twenty per cent more per pound for the low-set, compact animals. The possible profit might be greater if we would export dressed beef instead of live cattle, in many cases. I have been mildly abused and opposed for recommending the establishment of large slaughter houses in Canada. But you do not send to England live animals without having them reach Liverpool bruised and jaded, fevered in condition and lighter in weight; while dressed beef in a cold storage compartment does not deteriorate. At present, the retail butchers in England are opposed to any change that will prevent them from realizing the larger profit which they make from sales of meat from fresh-killed animals. We will be able to overcome that hostility and, after a time, put our beef and mutton on the English market in the most economical way. We should seek to develop the trade in fattened beef, and not in lean steers. I will read you an extract: "When we ship over to Great Britain store cattle, we ship cattle that should have been fed in our own stables, and that should have produced for ourselves the profit which the Englishman produces for himself by buying the animal and feeding it in Great Britain." That is from the address of your president last year.

BEEF.

The total value of beef imported into Great Britain in 1891 was \$21,386,610. In the year ending 30th June, 1891, Canada sent only \$740 worth.

SHEEP AND LAMBS.

The total number of sheep and lambs imported into Great Britain in 1891 was 344,504. Canada sent in the year ending 30th June, 1891, to the number of 40,732. Some experiments in the shipment of lambs to the English market were made and reported upon by Professor Shaw, whose excellent reputation is known throughout all Ontario. He states, as his conclusion, that a profitable trade in the shipment of lambs of good quality can be developed with England. With many others, I have been curiously amused at the criticisms of some who belittled Professor Shaw's earnest effort to hasten the agricultural millenium—the time when the British Lion and the Canadian Lamb will lie down together in peace.

MUTTON.

The total value of mutton imported into Great Britain in 1891 was \$15,972,404. Canada sent \$8,066 worth in the year ending 30th June, 1891.

SWINE PRODUCTS.

The total value of bacon, hams and pork imported into Great Britain in 1891 was \$48,868,234. The total value sent from Canada in the year ending June, 1891, was 7,530,079 pounds, with a value of \$626,037. Denmark, with a population of about 65,000 greater than Ontario, sent over 52,000,000 pounds, for which she realized an average of 12 cents a pound. We realized about eight and a quarter cents; and the bacon from the United States was entered at an average of about 7 cents per pound. The Danes have learned to cater for their customers, and have not believed in trying to sell lard to a man who wants to eat lean pork. So it will pay us to get leaner and less lardy hogs. The quality that is wanted is lean pork from dairy-fed swine. To meet the requirements of the English markets, larger numbers of our swine should be sold by our farmers alive. They could then be slaughtered at packing houses, where the carcasses could be treated and cured in a uniform satisfactory manner. As a rule, it pays the farmer and feeder better to sell his swine on foot than to market them as dressed hogs. Canada competes in the English market with the United States, which sent to England the largest proportion of the bacon she imports. That realized 7 cents per pound, and our bacon will sell for a cent to a cent and a quarter higher, because our pigs are fed on the by-products of the dairy and mixed cereals, while theirs are fed chiefly on corn. We can increase the profit by reducing the cost through economical fattening and selling the animals before they are too large and old. In the course of feeding experiments at the Experimental Farm, Ottawa, six pens of pigs were fed for over five months. The experiments at the farm at Ottawa show that four and one-half pounds of grain will give one pound of increase in live weight of swine, and that it is not profitable to fatten swine for any market after the weight of the animal exceeds 200 pounds alive. In some feeding tests, during the first month of feeding, when the pigs weighed from 77 to 103 pounds each, only 3.31 pounds of grain were required for each pound of increase in weight. During the next month, 3.07 pounds of grain were consumed for every pound of increase in live weight. During the third month, 31 per cent more grain was consumed for every pound of gain; 86 per cent, 110 per cent and 125 per cent more grain was consumed for each pound of gain during the next three months, respectively. At the end of the test the pigs weighed an average of 231 pounds each. For the last month's feeding 6.93 pounds of grain were consumed for every pound of increase in live weight.

Further particulars on the fattening of swine will appear in my annual report.

By winter dairying you will find it possible to increase the supply of hogs, as well as to produce them cheaper. I do not know any way of raising small pigs successfully and economically, except by the use of skim-milk after they are weaned. The winter raising of young pigs, to be fed off and sold during June, July, August and September, should be a very profitable adjunct to winter dairying. The English market will take an unlimited quantity of well-fed lean bacon and hams.

CHEESE.

The total value imported into Great Britain, in the year ending December, 1891, was \$23,434,829. Canada sent of that \$9,692,438, and the United States sent \$8,660,817. In 1881 we sent to Great Britain cheese to the value of \$5,510,443, and now it is nearly \$10,000,000 a year. Ten years ago—1881—the United States sent cheese to the value of \$16,380,248, and last year—1891—\$8,660,817. We are gaining on our competitors by sending to England the kind of goods for which they have a preference; and, if we will do the same with other articles, we will win an equal preference and advantage. In this commodity also it is possible to increase the profits by reducing the cost of production. The Hon. Thomas Ballantyne said very lately, in my hearing, that he had one cow that gave last year over 12,000 pounds of milk, and another one which yielded 11,000 pounds. By enlarging the capacity of our cows, lessening the cost of their feed by the use of corn ensilage, and improving the quality of our cheese, the profits may be greatly augmented. The English Cheddar cheese retails in England, in some cases, for 8 cents a pound above Canadian Cheddar cheese, and the latter occasionally sells for 8 cents a pound more, under the name of English Cheddar. I want the Canadian cheese marked on the cheese as well as on the box. We are making an effort, by branding our cheese "Fancy Canadian," to gain for our farmers the higher price, which presently finds a stopping-place in the pocket of the crafty English shop-keeper. The shipment of cheese from the Dominion Experimental Dairy Stations is having the effect of still further advertising the fine quality of our cheese. The trade with England might be doubled, as doubtless it will be in a few years, when the Maritime Provinces have their dairying developed. In Prince Edward Island, which is admirably adapted for dairying, the farmers thought it would not pay, and that fodder corn would not grow. Last year, from the meetings which I addressed in the Maritime Provinces, I sent out 524 samples of corn, to plant nearly a quarter of an acre each; and you never before heard such glowing reports as I have been receiving since. In England we have had to meet with competition from inferior goods from foreign and our own markets. Three years ago cheese from Quebec sold for an average of about one and a half cents per pound less than Ontario cheese, and last year less than one half cent per pound lower than Ontario cheese. Quebec is going ahead at a faster rate than Ontario, and will soon outstrip you in cheese and butter in the English market, unless you mend your ways. In Quebec, it is estimated that they have nearly 3,000 silos, and you have not nearly so many in Ontario.

CONDENSED MILK.

In the matter of milk, we might send to England a great quantity of condensed milk. England imported in the year ending December, 1891, \$4,124,745 worth. We have only one condensed milk factory in Canada, and the quality of the product manufactured there is most excellent.

BUTTER.

In the matter of butter, Great Britain imported during the year ending December, 1891, butter to the value of \$56,410,414. Of that quantity, Denmark sent \$23,680,421; France, \$14,785,239, and Canada \$912,307. Why did we send so little? Because we have not learned the art of making butter in the cheapest way, of the best quality, and at the most favourable season of the year. Denmark makes the largest share of her butter from September to March. The average price realized by the Danes was 24 cents, and by Canada 18½ cents per pound. We have sent lately a shipment of 186 packages from the Experimental Dairy Stations at Woodstock and Mount Elgin, which I think will sell as high as the finest Danish butter. We have been running a creamery at Woodstock on the cream-gathering plan. The farmers set the milk on their own premises, raise the cream and furnish that. We

have also one at Mount Elgin, where we take in all the milk and use a centrifugal cream separator. By the use of a centrifugal cream separator we can get from 15 to 30 per cent more butter from the same quantity of milk, when the cows have been calved more than six months. It means that there is the possibility of a very much greater profit when all the cream is taken out by the centrifugal machine. The English price for fresh-made, fine butter is always high during the winter. A responsible firm of exporters of dairy products has offered to provide one half the amount required to alter 25 cheese factories into creameries for the manufacture of butter during the winter. By the use of a centrifugal cream separator at a creamery during the winter, from 15 to 30 per cent more butter can be obtained from the same milk than when it is handled in the ordinary way at the farms. A higher price can always be obtained for quality that is uniform. The winter creameries will enable us to ship \$1,000,000 of fresh-made creamery butter to England, annually, during the winter, within five years; and these 186 tubs from the Experimental Stations are the first which have ever been sent.

POULTRY.

The value of poultry imported into Great Britain, in an average of three years, 1888, 1889, 1890, was \$2,229,885, annually. The average from Canada during these three years was \$1,500. Is it possible to sell poultry at a profit in the English market? Smith's Falls has the largest poultry market in Canada, before Christmas time. The price last year of turkeys, there, in December, was from 7 to 12 cents per pound; and the price in Liverpool for turkeys dressed was 21 to 26 cents per pound. The freight to Liverpool is from one and a quarter to one and a half cents per pound. Mr. Dawson, of Brampton, has made his fourteenth annual shipment, and they have arrived in good condition and sold at a profitable price. I have a letter from Messrs. Thomas Borthwick & Co., who are said to be one of the largest dealers in this particular line of product in Liverpool: "We beg to inform you that the large consignment of Canadian turkeys received by us at Christmas, and which were packed strictly in accordance with the instructions you sent out to the shippers, arrived in good order, and met with a ready sale at what must have been remunerative prices to them. We beg to point out that, if turkeys of good quality, and shipped according to your directions, should arrive at the proper time next season, there is practically an unlimited demand for them, as we have introduced them not only into Liverpool, but to all the large towns with which our business is connected, viz., Manchester, Birmingham, Sheffield, Oldham, Rochdale, Leeds, Leicester, Wolverhampton, Hull, Bradford, Cardiff, Bristol, Glasgow, Edinburgh, and other large centres of population in Yorkshire, where they have met with great favour. With careful feeding, packing and forwarding by fast steamers, they would be a formidable rival to turkeys from the continent, and, indeed, be a formidable rival to the home article. We cannot help thinking, after the experience gained in dealing with Canadian turkeys during the last two years, that, properly handled, a large development of this trade may be confidently looked forward to."

EGGS.

There were imported into Great Britain, in 1891, 106,811,370 dozens. Canada has been exporting about 12,839,000 dozens annually. Up to the past year we have sent to England annually an average of only 1,849 dozens. We used to send lots of eggs to the States, and they wanted them, but now they want something else besides them, and that is a big toll. Last year we sent to Great Britain just because we were compelled (a voice—"Yes, because we were compelled"). You know a man's salvation often dates from the time when he was compelled to consider his circumstances and adjust himself to new conditions. We sent to Great Britain last year 2,269,757 dozens. The Government agent at Liverpool, Mr. John Dyke, writes as follows:—

"The best quality of Canadian eggs compare very favourably with those from the continent, except as regards those known as 'best French.' These come principally from a small district in Normandy, are specially selected and are shipped without delay. This supply, however, is very limited, and does not affect the general trade.

"Danish, Austrian, German, French and Irish are not so good in point of size as Canadian. The best Austrian and German weigh about 14 lb. per 120, Danish 14 to 15 lb., best Canadian, 15 to 16 lb., with specially selected as much as 17 lb. per 120. Price: at the time, German and Austrian were making 8s., 8s. 2d.; Canadians were making 8s. 6d., and they have ranged from that to 10s. 6d. per 120.

"Freights on German and Austrian are 5d. per 120, from Hamburg, and they may be set down as 1s. from the principal points in the interior of Europe from which they come. From Canada, on the other hand, the rate is only 6d. per 120, from points as far west as Port Perry, Ont., and from Prince Edward Island, and this is actually 1d. to 1½d. per 120 cheaper than it costs to get eggs to Liverpool from the west of Ireland.

"When in long cases, they should be packed in long, clean, dry straw, rye for preference. When sent in patent packing, the cardboard boxes should *not* be filled in with oat hulls or chopped straw. There should be no necessity for it. Oat hull or chopped straw packing should not be used at all. It is objectionable, as, in the case of the breaking of one egg, this packing holds together the three or four surrounding eggs and spoils their appearance."

"Eggs should be shipped as fresh as possible, and the more rapid the transit the better.

"Import of eggs into Great Britain from the continent:—

1889	94,166,390 dozens.
1890	102,912,460 do
1891	106,811,370 do

(including those from Canada)."

There is a fair prospect for a large and remunerative trade with England, when experience has enabled shippers to avoid losses from breakages, and has induced the steamship companies to provide refrigerator space at low rates.

RECAPITULATION.

The total value of these animals and their products which I have enumerated, which were imported into Great Britain in 1891, was \$240,864,671. In the year ending 30th June, 1891, we exported of these products to Great Britain to the value of \$19,684,238, that is, practically eight and one-sixth per cent of the total value of these things which she bought from abroad. We sent to Great Britain and the United States during that year, altogether, \$21,617,679 worth of these products. We really sent to England of these things that I have enumerated, beginning with cattle and ending with eggs, food products from the farms to the value of \$19,684,238. And we sent of the same products to the United States to the value of \$1,933,441. I am confident we can extend this trade until we send to England 30 per cent of all the food products she buys. We have the area, the cattle, the climate, the carrying conveniences, and all we need is more men. The men we have now do fairly well, but they might do better; and if we do everything we can, we can capture a larger share of this market and get one-third of it. In area, we are the third largest country in the world, and our magnificent plains in the west are filling up.

HORSES.

Great Britain imported in the last three years, 1888, 1889, 1890, an average of 14,874 horses annually, of which Canada sent 179 a year. The horse market is dull in Canada. Horses in England and the United States are just as much cheaper than they were as they are here. In Ottawa, the Electric Street Railway Company furnish a most excellent service on the streets, with electricity as the motive power.

Toronto is discussing the feasibility of having electric street cars. It has been stated by writers of good repute that the substitution of electricity for horses lessened the demand by 25,000 on this continent, alone, during last year. If the demand has been lessened, there appears to be only two remedies, either to produce less, or to produce the kind that is now wanted. The horse that is mainly wanted in England is of a lighter style than we have been breeding. They are in demand for cavalry re-mounts; the average price there is £30 to £40. It costs about \$45 each to ship them there.

CANADIAN GRAIN PRODUCTS.

It is contrary to my own preference to advise the farmer to sell any primitive grain product off his farm; but some men will have a surplus, and as we will have a surplus as a nation, let us see if there is a possible market in England at a profit. Great Britain is the centre where competition meets us from the whole world.

WHEAT.

The wheat crops of the 22 main wheat-producing countries in the world in 1891 were estimated to be 2,029,302,500 bushels. The following are the particulars:

Yield of wheat in different countries in the world for season of 1891:

	Bushels.
England.....	70,125,000
France	226,875,000
Germany	85,250,000
Italy.....	100,375,000
Netherlands.....	41,250,000
Switzerland.....	8,250,000
Belgium.....	15,125,000
Denmark.....	1,787,500
Sweden and Norway..	4,675,000
Spain.....	74,250,000
Portugal.....	7,975,000
Austria.....	39,875,000
Russia	182,875,000
Hungary.....	116,875,000
Roumania.....	45,375,000
Bulgaria and Eastern Roumania...	34,375,000
United States.....	525,250,000
Canada.....	60,500,000
Algiers, Tunis and Egypt.....	66,000,000
East India.....	269,990,000
Australia.....	31,625,000
Turkey.....	20,625,000

Total.....2,029,302,500

Some of the information I have gotten from reports or publications of the Board of Trade, Vienna. Of the countries which require an additional quantity for home use, England takes 148,000,000 bushels, and France 82,000,000 bushels. These are the only two countries, that buy a quantity of wheat, with which we have any direct trade relationships. The United States yield last year was estimated in Vienna at 525,000,000 bushels, and they will have available for export about 165,000,000 bushels. Another estimate for the United States has been issued by Henry Clews & Co., of New York, the well known crop authorities. Their figures are:

	Estimated Production.	Required for Home Consumption.	Available for Export.
Wheat, bush...	600,000,000	360,000,000	240,000,000
Corn do ...	2,065,516,000	1,700,000,000	365,000,000
Oats do ...	758,559,000	600,000,000	158,559,000
Rye do ...	36,000,000	22,000,000	14,000,000
Barley do ...	77,400,000	67,000,000	10,400,000

Last year Great Britain imported wheat to the value of \$143,314,592. She imported wheat-meal and flour to the value of \$49,566,450; and perhaps she will go on importing still more as her population becomes more dense. Of wheat and flour, Canada exported to Great Britain, during the year ending 30th June, 1891, to the value of \$1,821,046. It has been reported that during the four years from 1871 to 1875 the increase in the area of land in the United States occupied for cultivation was 32 per cent. From 1875 to 1880 the increase was 34 per cent. From 1880 to 1885 it was 19 per cent. During the last five years, 1885 to 1890, the increase had been only 7 per cent, or an increase of $1\frac{1}{2}$ per cent per annum. That means they have reached almost the topmost limit of their expansion, and they are expanding slowly in the area which they cultivate. We are only beginning to extend our area of cultivation; and the inexhaustible agricultural riches of the North-West have only been touched. I think we will be able to export our millions of bushels of grain and millions of dollars' worth of animal products from that part of our country. That will bring re-payment of the big investments we have been making in its behalf.

BARLEY.

In the matter of barley, Great Britain imported, in 1891, 34,931,396 bushels, having a value of \$28,916,920. Canada has been sending to England very little barley. During the past season a little over 300,000 bushels of two-rowed barley were shipped, and the price paid to the farmers here has been from 8 to 15 cents higher than for six-rowed barley. It has not met with the same favour in England as, perhaps, some of us expected: for this reason, that the English market in everything is a discriminating market. Farmers need to have the different qualities graded properly, cleaned properly and kept separate, so that everything will stand on its own merits and quality. The Russian Government has been moving vigorously to establish a system of grain inspection at its ports, for Russian wheat has been dumped into England indiscriminately, and consequently brought the lowest prices. The prices in England for barley have been ruling at 36 and 40 shillings per quarter. That means a price of $92\frac{1}{2}$ cents for our weight of 48 lb. to the bushel. The freight and charges from Toronto to Great Britain vary from 25 to $27\frac{1}{2}$ cents per bushel. If we had a quantity of barley as good as the samples which were sent, it could have been sold in England at 36 shillings per quarter. The expense of getting it there would not be over 27 cents a bushel; that makes it possible for the Canadian farmer to realize 65 cents per bushel of 48 pounds. If you want to gain the English market, you must suit it, and it will give you fair play.

OATS.

Oats have been imported into Great Britain in 1891 to the value of \$26,648,572. The Liverpool price has been from 50 to 55 cents, and the Toronto price about 34 cents, leaving a bare margin for profitable export.

PEASE.

Pease were imported into Great Britain in 1891 to the value of \$4,197,144. During the year ending 30th June, 1891, Canada sent to England pease to the value of \$1,485,348. They have been selling in Liverpool at about 90 cents, and in Toronto at about 60 cents. Other varieties, like the Prussian Blue and Marrowfat, will sell at a higher price per bushel.

APPLES.

I have here the particulars of prices obtained for Canadian "Baldwins" in the Liverpool market during the present season. Based on sound No. 1 stock, the average price was 16s. 4d. a barrel, or about \$4. The average transportation charges are from 90 cents to \$1.10 per barrel. I have a chart here, showing the relative position for 4 years of the Canadian apples, showing how the Canadian "Baldwins" compare with New York, Maine and Boston "Baldwins." The chart shows that the Canadian Baldwins have been getting the highest prices going. That means that we have obtained the preference of the English purchaser, which I think a very important matter. Mr. John Dyke, Canadian Government agent at Liverpool, writes as follows:—

"The Canadian barrels are somewhat larger than those from the United States, but the quality of the Canadian fruit stands superior to any other apple imported into England. The particular varieties received from Canada are 'Baldwins' 'Greenings,' 'Northern Spy,' 'Kings,' 'Russets.'

"'Baldwins' are the apples in greatest demand, and the lowest average price for No. 1 sound stock this season has been 14s. 6d., whilst the highest average has been 20s. per barrel. Later in the season 'Russets' arrived here, and being a keeping apple, it has the entire control of the market. 'Kings' realize very good prices, but the quantities received are small. It is difficult to make a comparison between one season and another, as the crop varies very considerably. It is rarely that two big crops come in successive years, so that to compare the prices of this with last year is scarcely fair; but, as will be seen from the prices quoted, high rates are being obtained, notwithstanding the quantity received, and there is no doubt that the results have been very remunerative to shippers. The imports this season have been in excess of anything before recorded, but the quality has been excellent, and there is practically no limit to the demand for Canadian fruit of this quality and condition.

"The English apple, generally speaking, is not of a keeping quality, and is mostly disposed of by the time the Canadian winter stock arrives here—say the middle of October. After that date the English fruit is not a factor in the competition at all. The freight from any part of Ontario to Liverpool will not average more than \$1 per barrel."

I have taken a good deal of your time. The subject as to the possibility of selling Canadian farm products at a profit in the English market has not been presented as concisely to you as it would have been if I had had more time for preparation; but I have to thank you for your kind indulgence. The object has been to whet your perceptions, clear away some mists that gather around men's opinions when their information is imperfect, and lead you to the formation of a sound judgment and profitable practice. I have touched upon the economical aspects only. Besides, there is the patriotic and national aspect, which means a good deal to most men. I have hope for and faith in the future of my own country, and I have confidence in the capabilities of my own business of farming to render the farmers every desirable service. I am confident that the English market is able to give us such prices for our products as to leave a living profit, a leisure for workers, and enough of a balance to make Canadians the most prosperous, contented and happy people who follow farming anywhere on the earth.

THE ECONOMIC FEEDING VALUE OF ENSILAGE.

(Report of an Address delivered before the Convention of the *Ensilage and Economic Cattle-Feeding Association of Central Canada, at Montreal*).

Professor Robertson said:—

MR. PRESIDENT AND GENTLEMEN,—When I was asked to assist at the first convention of an ensilage association, I had some doubts as to the propriety and wisdom

of adding another association to the many which exist in Canada, to look after the interests of the farmers; but the more I have thought over the subject, and the more I have learned of the efforts of the men who have taken this in hand, the more convinced I am that there is room for this association, to help on the good work of making farming pay better in our Dominion.

I am very glad to learn from the opening address of the president that the aims of this association are so practical. A good many associations with very pretentious names are formed for the purpose of booming the popularity of a few men, or of enriching the pockets of a few men; but an association like this has the broad and worthy object of helping the ordinary farmer to do his work much better, so that he may be better off. I am glad that Montreal, in this year of grace, eighteen hundred and ninety-two, has taken some special interest in disseminating information through the agency of an association located in its midst for the benefit of the farmers. I want to tell you that Toronto has been ahead of Montreal in this respect, and I know you love Toronto so well that you will be glad to hear that news.

After the association was formed and I was asked to give an address, I was told, in confidence, that my address was not to be an apology for the existence of the association, but an exposition of the intentions, objects and capabilities of the association to give the farmers information on a most important subject.

I think these meetings in themselves are full of great possibility for farmers. Farmers, more than most men, are very easily discouraged in their work, and they have more to discourage them than most men. When they find their calling neglected by the men who have opportunities for wide observation, they begin to belittle its importance and to have scant respect for it. As soon as a man fails to feel an invigorating, almost indefinable enthusiasm for his work, just so soon are his powers to perform his work weakened. Every such association, supported by the business men and professional men, which looks after the farmers' interests, puts new hope in their hearts; and that is worth more to them than loads of information.

A convention like this is capable of furnishing information which we all need, and capable of engendering enthusiasm, which most of us need. I can read on a printed page all the information which I may obtain at this meeting; but there is an enthusiasm in a meeting which does not come from a printed page; and the more these meetings are held, the more farmers will be able to do their work well with a hearty spirit.

There are few subjects relating to agriculture that have so much interest, and in themselves so much importance, as the economical feeding of stock; and there are not many subjects, with which farmers should be acquainted, of which they know so little as the most economical way of feeding the cattle they keep.

My object in bringing so much dry goods to the meeting (charts) is only to give an object lesson on the most economical way of feeding the cattle on the farms of Canada.

A good many men farm, without thinking clearly as to the objects of agriculture. Men farm as they follow business, to make money, so I have been told. Possibly in Montreal they do not want to make money; they come from the Scotch stock, which has no inclination that way; but a few of the French people have set them an example in seeking the almighty dollar.

In following farming to make money, the farmer must remember that he has a three-fold task to perform,—first, to make money by providing food; second, to make money by maintaining the fertility of his fields, so that he will have some stock-in-trade to go on with in business in future years; and third, to make money by giving occupation to men for twelve months, and not for only six in the year. These three objects are the furnishing of food for the people, the maintaining of the fertility of the soil, and the giving of occupation at paying wages during the whole year. That system of farming implies the keeping of large herds of cattle on all the farms in Canada. To provide food only in the form of cereals means the exhaustion of the soil; it means occupation—so far as pay is concerned—for six months of the year, with six months of living on the income of the previous six months.

Now let me show you one chart, to illustrate the exhaustion of the soil consequent on this method of agriculture. In all farming—cultivation of the soil for the obtaining of food—the crops which grow on the fields take out of the soil three substances which are becoming rather scarce in our Dominion. As far as land is depleted of these substances it becomes a barren waste; and as it contains these substances in available condition, it is capable of giving back large crops in return for the smallest outlay. These three substances are nitrogen, phosphoric acid and potash.

A man in selling crops and products sells portions of these three things out of his fields. The drift of this address is to prove to you that feeding stock with ensilage does not take these from the farms in large quantities, and still does furnish these things for human food in large quantities—it is a paradox, but capable of demonstration.

Every ton of wheat carries forty-one pounds of nitrogen, fifteen pounds of phosphoric acid and ten pounds of potash. Pease and beans belong to the class of plants which have the faculty of appropriating most of the nitrogen from the atmosphere; therefore, while the sale of them carries a large proportion of nitrogen off the farm, the growth of them fixes nitrogen from the air. That is the advantage of growing pease as a fertilizing crop, instead of oats or buckwheat.

Nitrogen, phosphoric acid and potash in one ton each :

	Nitrogen.	Phosphoric Acid.	Potash.
	Lb.	Lb.	Lb.
Wheat.....	41·6	15·6	10·4
Barley.....	32	15·4	9
Oats	38·4	12·4	8·8
Pease	70·6	17·2	19·6
Beans.....	81·6	23·8	26·2
Indian corn.....	32	11·8	7·4
Hay	31	8·2	26·4
Clover	39·4	11·2	36·8
Potatoes	6·8	3·2	11·4
Fat cattle—alive.....	50	31·2	2·8
Fat sheep—alive.....	44	22·6	2·8
Fat swine—alive.....	34·8	14·6	2
Cheese	90	23	5
Milk	10·2	3·4	3
Fine butter.....	·5	...	...

Every 3 tons of hay will carry more off a farmer's land than 2 tons of fat cattle; and for 3 tons of hay he will get on an average \$30, while for 2 tons of fat cattle he will get \$200. By the hay method of farming he gets \$30 from the same quantity of these elements of fertility as he gets \$200 from when he grows and sells fat cattle.

If he be content with \$800 a year from his farm, he will have to sell four times \$200 worth of cattle to get \$800; and if he wants to get \$800 by selling hay, he will sell seven times more of these elements of fertility.

In selling swine, cheese, milk or fine butter, he sells a less quantity of valuable constituents out of his land than in selling hay. Hay is worth \$10 a ton; good butter, in winter time, is worth \$500 a ton. The ton of hay takes some 87 times more of the elements of fertility out of the soil than the butter does.

A farmer can make butter through ensilage with the largest profit at the smallest cost; and, instead of growing hay, he can grow corn, sell butter and get a far larger income. That is all I have to say in regard to this chart in the meantime.

For the economical feeding of animals, every man who keeps stock should learn something of the underlying principles of his practice.

Before proceeding with a further discussion of the subject of feeding, I shall introduce here a paper prepared by Mr. Frank T. Shutt, Chief Chemist at the

Central Experimental Farm, which points out briefly the nature and functions of the constituents of fodders in general. Mr. Shutt says:—

“All fodders may be said to consist of varying quantities of (1) water, (2) ash, (3) albuminoids, (4) fat, (5) fibre and (6) carbo-hydrates.

“*Water*—exists in large amounts, often as high as 90 per cent, in all vegetable substances. Though as necessary for animals as the air they breathe or the dry substance of the plants they eat, it cannot be said to have any nutritive or commercial value in a fodder. When a fodder is thoroughly dried it loses its water or moisture, and what is left is known as the dry substance. The larger the percentage of water, the smaller the percentage of dry matter, and *vice versa*. Hence, if two plants differ only in the relative amounts of water they contain, the one possessing less water will be the more nutritious, and consequently the more valuable of the two. Green and succulent fodders are often eaten by cattle more greedily and with greater relish than drier ones; nevertheless, if the dry matter in the latter has undergone no change to impair its digestibility, the foregoing statement holds true. Plants absorb water by means of their roots from the soil.

“*Ash*—is the mineral or inorganic part of the plant, and consists chiefly of lime, magnesia, potash and iron, combined with phosphoric, sulphuric and hydrochloric acids. When a plant is burnt, it is the ash alone that remains. The plant obtains its mineral matter or ash from the soil, where it must exist in solution in order that its absorption by the roots may take place. In the animal it contributes chiefly to the formation of bone, and supplies the tissues throughout the body with the minute quantity of mineral matter they possess. As all plants contain sufficient ash for these purposes, it receives no special value when considering the relative value of a fodder.

“When the amounts of water and ash are subtracted, that which remains is organic matter, and consists of several classes of constituents now to be discussed.

“*Albuminoids*.—This is a collective name used to designate a class of organic substances, which in a chemical sense resemble albumen (white of egg), and consequently possess nitrogen in addition to carbon, oxygen and hydrogen. The terms ‘crude protein,’ ‘proteids’ and ‘nitrogenous matter’ are used by some authors to denote the same bodies. The albuminoids are found alike in the vegetable and animal kingdoms, and all possess a similar composition, containing in the neighbourhood of 16 per cent of nitrogen, the remaining 84 per cent consisting of carbon, hydrogen and oxygen. Though similar in composition, they differ widely as to their physical characteristics, as the following examples will show: Casein or curd in milk; fibrin—that which is left behind after washing the blood out of lean meat; gluten—that which gives wheat dough its tenacity; and vegetable casein as found in nearly all plants to a greater or less extent, but more especially developed in the seeds of the leguminosæ (pease, beans, &c.) With the exception of the latter order of plants, the soil forms the sole source of nitrogen for all farm crops. The leguminosæ after they have reached a certain stage of growth obtain most of their nitrogen from the atmosphere, converting it into albuminoids within their tissues.

“The albuminoids are the most valuable for fodder purposes of all plant ingredients. They serve largely to form the blood, muscle and milk, and at the same time assist in generating the heat and energy necessary for the animal to live and to do work. The albuminoids in a fodder are calculated by multiplying the nitrogen found by 6.25—since, as before stated, these bodies possess 16 per cent of nitrogen.

“There are other nitrogenous bodies present in growing plants, known as amides. Their value as food has not as yet been accurately determined, but it is supposed to be somewhat lower than that of the albuminoids. As the plant matures, the amides become converted into albuminoids, the former having acted during the stages of vigorous growth as carriers within the plant of nitrogen in a soluble form. These substances are present in but comparatively small quantities, and hence they have been classed with the albuminoids in this work.

“The organic matter of a plant consists of a nitrogenous part and a non-nitrogenous part. The first having already been dealt with under the name albuminoids, the latter must now receive our attention.”

NON-NITROGENOUS ORGANIC MATTER.

“Three distinct classes of substances fall under the head “non-nitrogenous,” viz., fat or oil, fibre or cellulose and carbo-hydrates. These three consist entirely of carbon, oxygen and hydrogen in varying proportions. The plant has built them up in its tissues from the atmosphere with the aid of warmth, moisture and sunlight. Their functions in the animal are the formation of fat and the supplying of material for the combustion always going on as long as the animal lives. The result of this combustion or burning up of the non-nitrogenous organic matter in the animal by the oxygen of the air it breaths is the production of heat and energy whereby the animal is enabled to live and work.

“*Fat or Oil*—has the highest value as food among the non-nitrogenous constituents of a fodder. Weight for weight, it is reckoned 2½ times more valuable than the fibre and carbo-hydrates. It contains more carbon than either of the latter, and hence is capable of generating more heat and energy in the animal. The animal is able to partially transform vegetable fat or oil into fat in its own tissues. Together with the fat is estimated the small amount of chlorophyll—the green colouring matter of plants—hence the term ‘crude fat’ sometimes used.

“*Fibre*—sometimes termed cellulose, is the woody part of a plant or fodder. Its function has been explained in speaking generally of the non-nitrogenous matter. It has a low nutritive value compared with fat or the carbo-hydrates, and as but a part of it is digested in the animal it is counted of least worth of all fodder constituents. Speaking generally, the fibre becomes harder and less digestible as the plant reaches maturity.

Carbo-hydrates—also known as nitrogen, free extract matter, consist mainly of starch and sugar, together with small quantities of gum, &c. They form by far the greater portion of the organic matter of plants, and may be supposed to consist of carbon and the elements of water—oxygen and hydrogen. They chiefly serve in the animal as generators of heat and energy.

“The following scheme in tabular form may assist in making clear what has already been said regarding the classification of the several constituents of fodders :

Inorganic or mineral.....	Ash
Organic { Nitrogenous.....	{ Albuminoids, Amides, Fat, Fibre, Carbo-hydrates.
Non-nitrogenous .	

“*Percentage of Digestibility*.—It is well known that all the food eaten by animals is not digested—that is, that some part of it is voided in the solid excreta.

“By careful and repeated experiments, it has been ascertained what proportions of the various constituents of many fodders are digested, *i. e.*, go to form new blood and tissues, or are used to develop heat and energy in the healthy animal. The proportions digested vary for the different ingredients of a fodder, and are not the same for all animals. Thus there may be a larger percentage of the albuminoids digestible in bran than in corn meal when fed to the cow, and the case may be reversed with the pig. Again the fibre in corn fodder may to a greater extent be capable of digestion in all animals than that in wheat straw. Before our knowledge in this matter is complete, much work is yet required to be done, although much has already been accomplished in this direction, especially in Germany.

“The percentages of digestibility of the different constituents of corn fodder and ensilage, supposing them to be alike in both, are as follows :—

Albuminoids.....	73	Fat.....	75
Fibre.....	72	Carbo-hydrates.....	67

“*Nutritive Ratio*.—This is the ratio or proportion between the digestible albuminoids of a fodder and the sum of the digestible fat, fibre and carbo-hydrates, or in other words, between the nitrogenous and the non-nitrogenous portions of a fodder.”

"It has already been stated that fat is considered $2\frac{1}{2}$ times more valuable as a food than fibre and the carbo-hydrates; the *ratio therefore is between the amount of digestible albuminoids and the sum of the digestible fibre and carbo-hydrates plus $2\frac{1}{2}$ times the amount of digestible fat.*"

Having now learned from Mr. Shutt's paper the nature of those constituent parts of feeding stuffs, which are termed albuminoids, fat, carbo-hydrates and ash, I shall present a chart which shows the composition of the bodies of animals which are commonly fed and fattened upon the farms.

COMPOSITION OF BODIES.

	Water.	Albuminoids.	Fat.	Ash.
Ox (half-fattened) per cent	51.5	16.6	19.1	4.66
do (fat) do	45.5	14.5	30.1	3.92
Sheep (lean) do	57.3	14.8	18.7	3.16
do (fat) do	43.4	12.2	35.6	2.81
Swine (lean) do	55.1	13.7	23.3	2.67
do (fat) do	41.3	10.9	42.2	1.65

In selling a half-fattened ox, a farmer sells more of the expensive part of the fertility of his soil, and gets a lower price for the whole carcass than if he makes the animal fully fat. You can sell the water—the water which forms part of his flesh—for five cents a pound in a fat ox and three and a half cents in a half-fatted ox, or fifty dollars against thirty-five dollars for the same weight of an animal. Fat swine carry less off the land than lean swine. The farmer who markets lean stock sells off the wealth of his fields, and gets less for it.

I am trying to give you an object lesson, so that you will remember the principle, if you do not remember at all the figures which I mention.

In feeding oxen on ensilage or other substances, and in feeding all other animals, it is necessary that they should receive a certain amount of albuminoids, a certain proportion of fat, and a certain proportion of carbo-hydrates which go to furnish heat.

A long series of experimental work in many stations has brought the fact to light, that certain animals require certain quantities of these things. Take this for illustration:—In the fattening of oxen the standard says, they should receive two and a-half pounds of digestible albuminoids or nitrogenous matter per day, fifteen pounds of carbo-hydrates—gum starch, sugar and fibre—and half a pound of fat. We fed three lots of steers last winter—I did not plan to conform to this chart. I did not have any particular intention of conforming to this chart in my practice. I was trying to discover whether it was cheaper to feed animals on hay, roots and meal, or on corn ensilage and meal. The experiment lasted five months, and when I came to make up the exact quantity of these constituents, which the steers consumed, I found that those which were fed on corn ensilage and six pounds of meal per day had consumed the quantities mentioned in the standards for feeding rations, or so near them that the difference is not worth mentioning. The steers on hay, roots and meal cost 19.23 cents per head per day, or nearly $19\frac{1}{4}$ cents; the cost of the steers fed on the corn ensilage and meal was 11.90 or $19\frac{1}{4}$ cents against less than 12 cents per day; and the steers on the ensilage gained thirty-three pounds each more in the same time than the others. Now, you see the economy of feeding ensilage, apart from the standards, and also confirmatory of the standards.

I am going to exhibit this chart for the purpose of showing the proportion of these different constituents in every pound of certain ordinary feeding substances. I put wheat as a feeding substance, because in Canada we may be compelled, in my humble opinion, to feed a large quantity of wheat to our stock. We have large districts where wheat gets frozen occasionally, and we are now feeding frozen wheat to

swine—very badly frozen wheat—and getting over 15 pounds of increase in live weight for every bushel. There is a possibility of making money from feeding ensilage and frozen wheat. Combined with corn ensilage it makes capital feed for steers.

QUANTITIES of Digestible Protein, Carbo-hydrates and Fat, in each pound of certain Feeds, from tests with ruminants—(Oxen and Cows.)

	Total Dry Organic Matter.	Digestible Protein.	Digestible Carbo- hydrates.	Digestible Fat.
	Lb.	Lb.	Lb.	Lb.
Wheat.....1 lb.	89	095	588	014
Barley.....do	89	094	600	026
Oats.....do	87	080	440	044
Pease.....do	87	201	534	029
Oilcake.....do	92	283	368	050
Cotton-seed meal.....do	92	336	264	070
Wheat bran.....do	87	117	453	027
Mixed straw (wheat, barley, oat).....do	85	035	330	004
Mixed hay.....do	86	051	430	012
Corn ensilage.....do	25	016	230	006
Corn stover.....do	48	033	480	008
Turnips.....do	085	010	075	001
Mangels.....do	120	011	100	001
Carrots.....do	141	013	115	002
Sugar beets.....do	185	010	167	001








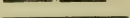
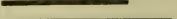
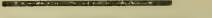
Your president said that the Hon. Minister of Agriculture, the Hon. Mr. Beaubien, had provided for a stenographic report of this meeting. I have this chart here, so that you will have it in the report for studious examination afterwards. In that respect, also, I think the association is most happily launched in its course of service for the farmers, inasmuch as the Hon. the Minister of Agriculture has extended his patronage to it; and he is one of the first and largest feeders of ensilage in the province, and one of the strongest advocates in support of the practice. The next question which comes up in connection with this subject is the economical making of ensilage.

Since a farmer must obtain these things, which I have indicated so often—the albuminoids, fat and carbo-hydrates—to feed his animals, and since he can obtain them in all the different farm products mentioned in the table, it becomes a matter of great importance to the farmer to know where he can find them cheapest. He can find these things—albuminoids, fat and carbo-hydrates—from strawberries down to corn stalks; but he must study where he can find them cheapest, because you can see that the success of a man's feeding depends largely on the cost of his raw material. Any man in business knows how easy it is to sell at a profit goods that are bought right; and how hard it is to make a profit in any market on goods that are bought wrong. A farmer buys, you may say, from his fields the raw material he gives his animals. There is no plant that can be grown on farms in Canada to-day that will furnish these constituents—albuminoids, fat and carbo-hydrates—for the feeding of animals, as cheap as the corn plant. In hay, oats, pease, barley and wheat, you can obtain the same constituents, but they cost so much higher that the man who feeds these things gets a less profit than the man who feeds them from corn-stalks. I will illustrate: the major part of the animal's food is carbo-hydrates, which keep it warm in our cold climate; these are found most palatable and digestible in sugar, gum and starch. The corn-stalk has the faculty of appropriating these things from the air, when exposed to sunlight and grown in a field where the plants have room.

While near Montreal last autumn I saw fields of corn, where the men had wantonly thrown away $2\frac{1}{2}$ bushels of seed to the acre—perhaps they were benevolently inclined towards Mr. Ewing or other seedsmen. When the corn-stalk has not room enough the green colouring matter is less active, and does not take in the carbon for the gum, starch and sugar. The corn-stalk serves the farmer in proportion as he gives it a chance—rich, warm soil and plenty of room.

This chart is for the purpose showing you the comparative value of corn-stalks cut on the 25th August and the 19th of September. It is taken from the work of Mr. Frank T. Shutt, chemist at the Central Experimental Farm. When cut on the 25th of August every ton of the crop had of digestible matter 249 pounds; when cut on the 19th September every ton of the crop contained 297 pounds of digestible matter.

INDIAN CORN—Digestible Matter per ton of Green Fodder.

		Cut.	Lb.	Value.
Average of 7 Varieties.	Total digestible matter.	August 25.	249	
		September 19.	297	
	Albuminoids.	August 26.	25	
		September 19.	27	
	Fat.	August 26.	3	
		September 19.	5	
	Fibre.	August 26.	77	
		September 19.	89	
	Carbo-hydrates.	August 26.	143	
		September 19.	175	

In every ton of green fodder there were in the first stage 249 lb. of digestible matter, and in every ton at the other stage there were 297 lb. These are the constituents: Albuminoids, fat, fibre and carbo-hydrates. Of these the albuminoids are the most valuable constituents, corresponding to the fibrin of beef or the albumen of eggs. At the first period there were 25 lb. of albuminoids as against 27 in the latter. Of fat there were 3 lb., as against 5 lb.; of fibre the proportion was 77 to 89; of the carbo-hydrates there were 143 against 175. The teaching of the whole thing is, that every ton is worth more at the latter stage, and you have more tons to the acre. This lower chart will illustrate these points still more clearly. It is taken from the average of five varieties of Indian corn at these stages.

INDIAN CORN—YIELDS PER ACRE :—

	Lb.
Tasselled, July 30.	18,045 Green weight.
	16,426 Water.
	1,619 Dry matter.
Silked, August 9.	25,745 Green weight.
	22,666 Water.
	3,079 Dry matter.
In milk, August 21.	32,650 Green weight.
	27,957 Water.
	4,693 Dry matter.
Glazed, Sept. 7.	32,295 Green weight.
	25,093 Water.
	7,202 Dry matter.
Ripe, Sept. 23.	28,460 Green weight.
	20,542 Water.
	7,918 Dry matter.

Most of the gentlemen of the convention will understand that there are several distinct stages in corn growth. For the sake of convenience we speak of the later stages in the following terms:—First we have the “tasselling;” then you have the “silking,” when the silk threads come through the husk; then there is the stage when the corn is “in milk”; after that is the stage when the kernel is “glazed” on the outside; and lastly you have the “ripe” stage, when the plant is matured. At the “tasselled” stage there were 18,045 lb., of green corn to the acre. In these 9 tons and 45 pounds there were 8 tons and 426 lb. of water; so that we had only 1,619 pounds of dry matter. The dry matter is all that is valuable. It is not equally digestible in all its stages, but still it must be there to be available. At the “silking” stage there was great increase in the dry matter, and so all through, as shown by the diagram in the chart. If you put it down in dollars and cents, the difference would be this: that if it be said to be worth \$16.19 per acre at the first or “tasselling” stage, the same crop is worth \$72.02 per acre at the latter or “glazed” stage, and there is no increase in the cost of production per acre between that stage and this. The man does not put an extra ten cents to the acre. The extra digestible constituents are largely taken from the atmosphere. So you will see the great importance of growing corn for ensilage purposes to the “glazed” stage. We have been urging everywhere, for the last two years, that farmers should grow corn so that it may reach this stage.

The corn at the “glazing” stage has the largest quantity of food value in itself, and it is then in the most digestible condition.

In our work on the Experimental Farm in 1891, we compared four varieties of corn—“Thoroughbred White Flint,” “Red Cob,” “Longfellow,” and “Pearce’s Prolific.” At the “tasselling” stage we realized per acre of dry matter—not all digestible—but dry matter, 6,468 lb. We realized at the “silking” period from the same varieties 7,770 lb. At the “early milk” stage we realized 9,138 lb.; at the “late milk” stage, 9,467 lb.; and at the “glazing” stage, 11,298 lbs. I want to read these figures to you to make an impression on your mind with regard to the advantage of cutting at the late stage. There was nearly double as much dry matter per acre at the “glazing” stage as at the “tasselling” stage, and you cannot get corn to the “glazing” stage by sowing it broadcast.

I wish to give a further illustration, by taking Indian corn on an average of five trials. The stage of growth from 24th July to 5th August, at different experimental stations, reached the condition from the “tasselled” stage to the “bloom” stage. First we may take the quantity of dry matter per acre at these two stages. The diagram that I have prepared to illustrate these points is as follows.—

24th July to 5th Aug. {	Tasselled to bloom.	{	Dry matter.....	10 inches long.
			Albuminoids.....	10 do
			Fat	10 do
			Carbo-hydrates....	10 do
3rd Sept. to 23rd Sept. }	Glazed to ripe.	{	Dry matter.....	30.5 do
			Albuminoids.....	21.4 do
			Fat.....	33 do
			Carbo-hydrates....	36.5 do

I need hardly emphasize still further the fact that no additional expense is involved in producing a crop to the later or glazed stage; the work is all done and the outlay has all been made before the crop reaches the tasselling period.

The silo will not grow a crop of corn. If you put it at the “glazing” into the silo, it will give you a large quantity of feed, but at the “tasselling” stage it will give you an expensive way of watering cows.

I fear I have encroached on the time of the other speakers, but I wanted to show you that ensilage is the cheapest feed for cattle, and also to show you how this association might help the prosperity of Canada, by instructing farmers how to make ensilage in the best way. I will give you a few more words on the feeding value of it. I have given you one instance from the feeding experiments which I

quoted. We have been carrying on a series of extensive experiments this winter, which are not yet completed. I made an examination of the books the other day, and I found this to be the teaching of the experiment this year—that in feeding steers on a corn ensilage ration as against a hay and roots ration, for one quarter less cost we get one quarter more gain in weight. In both cases an equal quantity of meal was put with the fodder ration.

Question by a member.—What price do you put on the hay in making your estimate?

Prof. Robertson.—Eight dollars per ton. I am putting ensilage at \$2 per ton, but most men in the vicinity of the city here can make it for \$1.25 per ton. In our feeding tests during the winter of 1890-91 I reckoned the ensilage at what it cost, namely, \$1.40 per ton. When the corn was put in the silos, in 1890, it had been wilted on the average for two days. The shrinkage in the weight and also damage to the crop from a hailstorm caused the ensilage to cost more per ton. Hence, it has been valued in our feeding tests during the winter of 1891-92 at cost, viz., \$2 per ton.

One other advantage of the feeding of ensilage has been overlooked, and it is this: By feeding cows with ensilage it is possible to have winter dairying in our cold climate, and that means an income from our cows the whole year round; it means the possibility of feeding milking cows with not more than 6 lb. of meal per day. In feeding eighteen cows in groups of three, I do not find any gain from feeding over 8 pounds of meal per head per day, but I find farmers around Montreal feeding 12, 15 and 16 lb. per head per day—an extra cost of 8 cents per day, with no more milk returns. As soon as we feed over 8 lb. of meal per day we make the milk richer in colour, but no richer in percentage of constituents. Thus you see with ensilage you can get more value in product with less cost per day.

The magnitude of this cattle trade does not come within the comprehension of the ordinary farmer or business man. Last year from this port of Montreal there were handled about 4,000 carloads of cheese, which represented millions of dollars. The value of the cheese exported last year was over 9½ millions of dollars; the value of the butter exported was about six hundred and two thousand dollars; and there was not a tub of that butter made after November, so far as I know. This year we started two creameries by altering cheese factories into creameries, and we made shipments for the first time of that class of butter to Europe—most of it from cows fed on fodder corn. The latest report I had was that the butter was fetching 124 shillings per cwt.

In Western Ontario we may have next winter 25 creameries running all winter, wholly due to the corn crop and the use of ensilage. We can have in 10 years' time as large a value in butter exported as of cheese, by growing corn and feeding ensilage; and if Montreal could handle \$10,000,000 worth of butter and \$15,000,000 worth of cheese, it would be beneficial to the wholesale trade and every other line of business. Then, in live stock, last year Canada exported 108,000 head of cattle, of a value of \$8,623,202. It is possible to feed more than twice as many animals on the same farm, by growing corn for ensilage, instead of growing hay. The tremendous possibility of this is apparent, if you take the figures in regard to the keeping of animals that are dry, the keeping of animals that are being fattened, and the keeping of those which are giving milk, and calculate the possible reduction in the cost of the wintering of cattle in Canada for one year—I mean from November till the end of April—by the feeding of ensilage. The actual saving would amount this year, if corn ensilage without hay were fed, to \$19,000,000 in the Dominion of Canada.

Now in the export of agricultural products we might send abroad \$42,000,000 worth annually, but if we shall save the \$19,000,000 that can be saved by feeding ensilage, we will find the farmers better off, and they shall have a large proportion of the profits which now remain with the merchants.

One more point,—by winter dairying it is possible to extend our trade in swine, and in this climate, with the best conditions for the growing and curing of fine bacon, we could send to England as much bacon as cheese. I see a large possibility of a bacon trade in the North-West, which has the best climate for growing animals

and curing meats. If the people of Quebec do not take it up the people of Manitoba will, and will market the grain in the form of concentrated products and get the best profit for themselves.

In winter dairying it is possible to raise little pigs during the winter, and these little pigs raised on skim-milk and buttermilk can be marketed to advantage at 6 and 8 months old. No matter how you look at it, the growing of corn and the feeding of ensilage will enlarge a farmer's output and multiply his profits. Five acres of corn made into ensilage will keep fifteen cows in splendid condition, so far as fodder is needed, all winter.

The small farmer, the man who has been neglected, the man who says "the big farmer can keep stock and make money, but I cannot," can so enlarge his output through feeding corn ensilage as to have on a small farm a large profit and small expense.

The growth of corn and the making of ensilage is capable of the best service to the farmers, and every farmer's prosperity is a measure of prosperity to every good citizen of the country. Canada can make gains from the growing of corn and the making of ensilage; and your association in my opinion is deserving of the most hearty support.

(4) THE RELATION OF AGRICULTURE TO PROGRESS IN THE DEVELOPMENT OF
CANADIAN LIFE.

(Report of an Address before the Ensilage Convention in Montreal.)

Mr. Robertson said:—

MR. PRESIDENT AND GENTLEMEN,—I am very glad that the Ensilage and Economic Cattle Feeding Association of Central Canada has found a place for its convention in the city of Montreal. Montreal's position as a commercial metropolis of Canada gives it a special advantage as the centre from which to disseminate information that will help the agriculturists who live in its immediate vicinity, and also in the most distant parts of our wide Dominion.

The newspapers of this city are to be complimented upon the attention which they have devoted of late years to agricultural topics. Through the wide circulation which the leading journals here have obtained and the excellent reputation they have won, whatever appears in their columns is read with a large degree of confidence by many farmers; and newspapers elsewhere in the Dominion copy readily from their issues.

I trust that this association will have a happy development in occupying the largest possible sphere of usefulness among the many associations which exist mainly for the improvement of agricultural products.

If I might express a modest wish on behalf of this foundling among agricultural associations, I would say that I hope it will live to attain among them as ample proportions as its respected paternal author has among men.

I expect from it also the utmost service within a wide sphere, and hope that its sphere will continually enlarge, until farmers everywhere, who keep cattle, fall into the habit of growing enough corn for ensilage for the economic feeding of their stock. The discussion which has just been closed has informed me of one other fact in regard to which I needed some correction. In expressing a preference for Montreal as a meeting place for this association's convention, the saying was used: "Since the mountain cannot go to Mahomet, Mahomet must come to the mountain," and hence the inference was left that the farmers of the surrounding country must come to the mountain of Montreal. I have been accustomed to speak of the elevation of land behind your beautiful city as "a hill," and such it always seemed to me; but I will not again offend against the tender susceptibilities of Montreal people by speaking of it otherwise than as "a mountain."

Many of the leading men to whom Montreal owes much of its commercial prosperity forget to remember the source from which that prosperity is drawn.

The vast warehouses which line your business streets, the extensive wharves which present such scenes of bustling activity during the shipping season, owe their

existence to the handling of large quantities of farm products. If these can be multiplied in quantity and increased in value, every handler, every business man will have a better chance to enlarge his business and increase his profits. The wholesale business trade of Montreal ultimately depends on the great mass of consuming farmers for the purchase of their goods and wares. The dry goods merchant, the hardware merchant, the agricultural implement dealer, the seed merchant, and nearly every other branch of commercial enterprise in Montreal respond speedily to good times among the farmers.

If the remittances from the stores in the country districts come in slowly the bankers and professional men will also find financial stringency and difficulty in carrying on their business with success. Montreal is perhaps the latest among all the large cities to manifest in some concrete and public manner its interest in the welfare of the farmers, who after all furnish the bone and sinew for its commercial enterprises, and Montreal has this substantial quality of business in its midst—its progress has been gradual, solid and real. Cities in our country which grow upon the establishment of ventures and transactions, which have little of the real wealth of the country in them or behind them, are subject to great booms and depressions. Western cities are noted for their adhesion to the sentiment which they have paraphrased from Tennyson's "In Memoriam"; and they say: "It is better to be boomed and bust, than never to be boomed at all."

As the citizens of Montreal recognize their dependence upon the farmers of the country, and lend what assistance they can to improve their condition, so far will they remove from themselves all probability of commercial depression. Toronto has set Montreal a good example in the development of associations with their locus there for the improvement of agriculture; and I dare say that the ardent tenderness which Montreal entertains for her sister city will stimulate her to copy her good example in this regard.

In the study of the relation which agriculture sustains to the condition of society which we call "highly civilized life," we must bear in mind that the farmers furnish most of those things which outwardly distinguish the civilized citizen from the rude barbarian. In the minds of very many men, the difference between the highly civilized citizen and another individual consists largely in the quality and kind of the clothes that are worn and the food which is eaten. The raw material for the clothing of the people comes from the farms. From the woollen goods for coats to the silken neckties, the raw material is the product of living creatures fed upon plant products; and the production of such things is the aim of all modern and intelligent agriculture. In the march of progress, the agriculturists have not been lagging behind, but have been leading the race and community to higher attainments. The food of the people also comes from farms, and good living in this sense, provided by skilful farming, means good living in many other senses also.

When farmers furnish an abundance of nutritious food at a low cost of production it is well within the reach of more people; and when a community is well fed, even to its poorest members, it is strong for all the activities and claims of our wearing life. The importance of agriculture to the commercial enterprises of our country is easily noticed by observing how sensitive they all are to the condition of the farmers. When hard times prevail in rural districts, depression follows in every centre of manufacturing and commercial endeavour.

The success of farmers, which means for them good times, comes mainly from good crops; good crops depend mainly upon good cultivation, the use of good seed, the exercise of good management and the prevalence of good weather.

In nine seasons out of ten, in Canada, the weather is quite favourable for the production of good crops; the other factors are well within control of the intelligent farmer. The want of knowledge about his own business and the want of interest in the methods whereby he can improve his productions are perhaps among the main difficulties that afflict agriculture at the present time. Associations such as this, conventions such as the present, are means whereby these ailments of the farmer and farming can be cured.

The magnitude of the interest of agriculture might be set before you in statistics that would bewilder you and not serve you much afterwards. Instead of adopting that plan to present to your mind a view of its greatness, I would prefer to take you on an imaginary trip across the continent to indicate very briefly the vast agricultural resources of this country, and to point out that upon agriculture the largest part of our population depends for a living.

At present there are some twenty-five million acres of land under cultivation, of which sixteen and a half millions of acres are under crop annually. It would be easy for a farmer, by an intelligent improvement of his methods, to increase the annual yield and value of products by at least three dollars per acre. That would mean in figures an increase of the available wealth of the country to the extent of fifty millions of dollars per year. If the poor farmer of the country—that is the man who farms in a poor way—would improve his practices until they were equal to that of the good farmers of the Dominion, the value of the crops and products could be increased annually by at least fifty millions of dollars, without the outlay of a single dollar additional. An acquaintance with the vast extent and almost limitless resources of our country will give spirit to every wholesome national enterprise, and will also put such patriotic pride into the heart of every citizen that he will do better for himself and thus do better for his country.

(Prof. Robertson here, by the use of a map, took his audience on an imaginary trip over the continent commencing at Ottawa, passing through the northern portion of the Province of Quebec, through New Brunswick and into Nova Scotia, through its fertile valleys over to Cape Breton and back to Prince Edward Island, which he characterized as the gem among the provinces of the Dominion, with less waste land in its area than any other. Reference was also made to the large fertile areas of Manitoba and the North-West Territories and to the fields on the river banks in British Columbia which yield enormous crops per acre).

Perhaps no five millions of people on the face of the globe, in a national capacity, are possessed of natural resources and sources of wealth in an equal degree with the people of Canada. The quality of what wealth is, is seldom very well understood by even men who frame the opinions of our agricultural classes. The annual statements of bank managers seem to others, like myself, to be compilations of figures and statements that frequently obscure the true meaning of wealth, its production and distribution.

It would not be wise to weary you or to trouble you with the abstruse definitions which have been given of wealth by many writers on political economy. The ordinary labouring man, as well as the millionaire, knows the true meaning and nature of wealth as something substantial which he wants to gain possession of; and hence I put it that anything that ministers to the wants of man, and the ownership and possession of which can be transferred from one person to another, is wealth. Its main sources are the soil, the air, the sun, the water, the rocks and intelligent labour. From the first four and the last we obtain all agricultural products. They then represent in themselves something which people want to possess, and which have been obtained by intelligent labour. The market never makes or creates any wealth. The frequent handling of a box of cheese or a tub of butter does not add anything to its nourishing qualities. Although a bushel of wheat may change hands every week, such exchange will not add an iota to its life-sustaining qualities. What the country needs is improved methods in the production of wealth, rather than increased facilities for the handling and exchange of wealth.

One factor in the production of wealth, which is most under our control, is that of intelligent labour. The intelligent labour on the farms of England has brought to that country vast wealth, which could never have been secured by the shiftless methods of farming which prevail in this country, and on this side of the ocean. For the best horses we go to England or France. For the best cattle, sheep and swine, for the best live stock for all farming purposes, we go to England. The cause for this does not reside in her superior soil or better climate, but in the superior intelligence of her farming. The operations in these matters have been directed by the

skill of the educated classes, who have made plans for the work of her farmers. The men trained in the sciences, with intellects brightened by the best education afforded by colleges and universities, have owned the larger share of her farming lands. The rules in the old leases which guided the operations of the farmers, provided for improvement in every kind of product which was obtained from her fields. Far be it from me to recommend that the system which prevailed in England should be transferred to this country. Farmers in Canada live under happier auspices, where every man has the opportunity and need for directing the toil of his own hands by the thinking of his own head. In our country, more than elsewhere, the quality of the working farmer's thought determines the outcome of his own labour. Hence the commercial and professional men of this country, who have unusual opportunities for having their minds sharpened to perceive the best methods of carrying on work, should give the farmers every encouragement and aid towards clear thinking about their own business. The nature of the farmer's work compels him to be a rather isolated individual; he has not frequent occasion to meet his fellows and rub against them in transactions, whereby his mind would be quickened in its action and strengthened in its judgment. There should be nothing of antagonism in the interests of the city and the interests of the country; the prosperity of the one is dependent upon the prosperity of the other. Hence, as the professional and other city men help the farmer to appreciate and acquire knowledge about his business, they advance their own interests.

It has been mentioned to-night that there is a great deal of capital in Montreal seeking investment in all sorts of enterprises. The capital which is most wanted in our country is that of confidence in our own business, a hope in the future of our country, and enthusiasm in carrying on our work. If this association and the city of Montreal can infuse some of that capital into the districts that surround it and into the homes of the farmers, it will render them the largest public service. Somebody's clear thinking must precede and underlie every rational effort that makes for the improvement of products, the increase of profit and the mitigation of toil. Many nostrums for the bringing about of national prosperity have been advertised, sometimes by men from unselfish motives and sometimes by men in prominent positions from motives which had best be left undefined. The one rule for national prosperity, which applies alike effectively to the country and city, is the application of industry with skill, the practice of frugality, fair dealing between man and man, and the blessing of Providence in giving good harvests. National lasting prosperity, and these conditions, can be brought about largely through the instrumentality of such associations as this and its work.

The present status of agriculture is rather a reproach to the honour of the nation, and threatens its stability. The Governments of the country have recognized the need of helping the agricultural interest because of its bearing towards commercial prosperity; hence the establishment of experimental farms and the work of travelling instructors in dairying and other branches of farming. Their object is to shed the kindly light of knowledge into the homes of the humblest farmers in the whole land as well as into the lives of their more favoured brothers. Their range of usefulness is being yearly enlarged, and the educational part of their work is becoming more effective.

The Dominion experimental farms are under the capable directorship of Professor William Saunders, who is assisted by a staff of able specialists. The reports of the experimental farms are sent free to all farmers who apply for them.

Reference may be made to one or two branches of the work, which seem to exercise the most direct influence in the improvement of agriculture.

Distribution is made of new and promising varieties of grain to the extent of a sample 3 pound bag to every applicant. From the 3-pound bag many farmers obtain a yield of two bushels. By this means they can get into a new and good variety of seed grain very speedily. Over twelve thousand of such sample bags were sent free by mail during the course of last year. The farmers who grow these small plots of grain become more observant in their methods of farming; and

the educational value to themselves in this regard is quite as important as the possession of a quantity of some new variety of seed. Experiments are carried on in regard to the cultivation of grain under different methods. As one instance of the possibility of improving the yield of grain per acre by the improved methods of agriculture, it may be mentioned that in a series of six ranges of plots on the Experimental Farm at Ottawa, experiments have been carried on to discover the relative results per acre, obtained by sowing the same variety of grain in the same soil during the same season at different dates. Two plots of wheat, barley and oats are sown as early in the season as the land can be worked; a week later the same varieties are sown upon adjoining plots, and so until the 36 plots are sown by the end of the 6th week. The early sowing seems to result in a much larger yield, which is very striking in the case of wheat and barley.

In the following table the results are presented in a form convenient for comparison :

	Sown, April 21. Yield, per Acre.	Sown, April 28. Yield, per Acre.	Sown, May 5. Yield, per Acre.	Sown, May 12. Yield, per Acre.	Sown, May 19. Yield, per Acre.	Sown, May 26. Yield, per Acre.
<i>Spring Wheat.</i>	Bush. lb.	Bush. lb.	Bush. lb.	Bush. lb.	Bush. lb.	Bush. lb.
Campbell's White Chaff ..	47 50	32 50	27 30	29 30	28 30	19 10
White Connell	35 50	26 40	30 00	23 20	23 40	27 10
<i>Oats.</i>						
Prize Cluster.....	59 24	84 04	54 24	33 08	53 03	40 00
Banner	76 01	79 24	86 26	87 22	78 18	55 30
<i>Barley.</i>						
Prize Prolific.....	65 10	55 35	50 20	51 37	40 40	37 14
Baxter's Six-rowed.....	55 35	67 04	56 32	42 39	34 08	35 30

The experimental work in the feeding of cattle has also a very important bearing upon the improvement of agriculture and the prosperity of the country. As was mentioned at the morning session of this convention, it has been successfully demonstrated that steers can be fattened on a ration of corn ensilage and meal at 7 cents per day less for feed, with an average gain of more weight during the the same feeding period than upon a ration of hay, roots and meal. Experiments are also in progress at our Experimental Dairy Stations to direct the attention of the farmers to the possibility of developing the winter dairy business, whereby they will be enabled to export to England quantities of butter, which will bring as large an income to the country in the winter as we now realize from our shipments of cheese during the summer. The handling of cheese through Montreal in the course of last year aggregated something like 4,000 car loads. The shipments of butter during the winter in the course of ten years should reach an equal value. This could be brought about by the extension of feeding ensilage and the growth of larger areas of corn.

The developments of civilization have changed the conditions of the farmers very much; they have made competitors out of men who are geographically far removed from each other, and in this competition the farmers who produce the most concentrated products will usually succeed best.

Now-a-days the butter-maker in New Zealand is a direct competitor with the butter-producer in Ontario. They both send their products to England, for the Eng-

lish market. The freight charges on a tub of butter weighing sixty pounds need not be very much higher than the freight charges on an equal weight of grain. A tub of butter may readily bring \$12 or \$15, while a bushel of grain might bring \$1.

Under the auspices of the Dominion Government, two cheese factories in Ontario have been altered into creameries for winter butter-making. The first shipment of winter-made creamery butter was sent to the English market a few weeks ago. Advices have since been received that it has met with the most favourable reception and is rated as being almost as fine as the finest Danish butter.

When our farmers have a number of fresh calved cows for winter dairying the butter will be altogether as fine as that which is sent to England from Denmark or any other country. The only difficulty in the lot which was sent was due to the absence of a rich flavour, owing to the cows whose milk was furnished to the factory being calved for a long time. I fully expect that at least twenty-five such creameries will be in operation in Ontario during the winter of 1892-93.

If even a million of dollars from the exportation of butter could be obtained annually within three years, that would prove a boon to the country in many respects. This industry does not displace any other, and does not lessen the farmer's receipts from any other source. On the other hand, it enables him to develop other branches of his business with more advantage and profit. In some measure the farmers, as well as men in other callings, have lost control of the market; but inasmuch as they have gained control of the cost of production by improved methods and increased knowledge, their profits may still be as large as ever. Profit always comes in between the cost of production and the price that may be realized. If the former can be reduced, the profit is more certain to stay with the farmer than if the latter happens to be increased by any combination of circumstances. The profits from an advance in price usually stay in the pockets or tills of the crafty commercial men; the profits that are obtained from the reduction in the cost of production are more generally left in the possession of the farmers.

In the development of agriculture, farmers should be discouraged from marketing primitive products, which take from the soil large stores of its fertility. They should be encouraged and advised to sell animals and their products, which enable them to realize larger incomes without the exhaustion of the soil. Farmers have an impression that there are much larger profits in manufacturing than in agriculture. I think the farmer is right in this impression; but instead of advising him to complain because this state of things exists, I would advise him to become a manufacturer himself, and thus obtain his share of these larger profits. The primitive products, such as hay, corn stalks, pease, barley and oats, can be manufactured into refined and concentrated products, such as beef, butter, cheese, pork, mutton and horses. Of all agricultural products, leaving out horses and hay, Canada exported to Great Britain and the United States last year to the value of \$35,955,986. While this export trade is of great value to the farmer, he should never overlook the value to him of the home market, and he should cater to meet its requirements. Of these products which I have mentioned, Canada exported to the United States during last year to the value of \$10,017,390. During the last ten years the increase in the city and town population in Canada amounted to 384,146. That number of persons living in towns, and not producing food, consume of farm products annually, at the wholesale farmers' prices, to the value of at least twenty-one millions of dollars. An enlarged home market can be created and sustained by furnishing products of the very best quality.

(The remainder of the address was devoted to a discussion of the development of the cheese, butter, cattle, sheep, swine and grain interests of Canada; as the substance was similar to that presented at pages 92 to 99 of this report, it is omitted here.)

Better methods and better systems of farming would enable the farmers to produce larger quantities and superior qualities of all these commodities which I have enumerated. The material wealth of the most important and numerous class of our

citizens would be augmented; and better gains and benefits than that would come to our country from a betterment of the financial condition of its rural population.

The fruit of better farming would be observed in an improvement of the country homes, in their furniture and equipment, in the clothing of the farmers and their families, in their carriages and harness, and in the possession of all those manufactured articles the making of which gives employment to the denizens of our cities.

The possession of these things would be the cause and consequence of an improvement in the intellectual life and activities of the farmers and their families. For many of its strongest and best intellects the nation, in its most comprehensive sense, has to draw from the country homes. The man who attains eminence in professional life, and in commerce and manufacturing, is frequently recruited from the ranks of the farmers' boys. The vigour of intellectual life usually accompanies a sense of contentment and satisfaction among farmers who are doing well. In this regard, again, improvement in agriculture would re-act most beneficially on the intellectual life of the whole Dominion. To the farmers' judgment as the final court of appeal is submitted all public questions; and upon its verdict depends the policy of the people in their national capacity.

The moral life of the people in some measure depends upon their personal comfort and well-being. In this regard, also, improvement in agriculture, with increased prosperity in commercial circles, would tend to give our people a kindlier and more brother-like feeling towards their fellow-citizens.

As has been already indicated, we are essentially an agricultural people, and our commercial enterprises depend in a large measure on the success which attends the farmers' efforts.

The production of greater wealth on the farms of the country would give every honest business man a better chance to obtain a share of it for the support of his family and for the accumulation of a competence under favourable conditions. I am hopeful that with the assistance of all classes in the community, and under the direct leadership of the leading commercial men of cities, very speedily the farmers of Canada will come to be recognized as the people who have the most comfortable homes, the most contented lives, and the most advantageous opportunities for acquiring all that the heart of man can honestly desire, of any people who follow farming on the surface of our mother earth.

(5.) THE BABCOCK MILK TESTER FOR THE CHEESE FACTORY.

(Report of an Address before the Convention of the Dairymen's Association of Eastern Ontario, at Cobourg.)

Prof. Robertson, Dairy Commissioner for the Dominion, was then invited to continue the discussion of the testing of milk, and the payment of milk at cheese factories according to its quality. He said: "The effect of paying a man who sends milk to a cheese factory, solely for the number of pounds of milk which comes in his can, has been to create a feeling of suspicion in the minds of farmers regarding the honesty of their neighbours and the fairness of the management of the factory. You can never make a foundation for a business so deep that the superstructure will not be threatened with disaster when such a feeling is allowed to prevail. It will never do to pay A for more than comes in his can, nor B for less than comes in his. If you can devise some method which will make a fair division, you will eliminate suspicion. We have never found it needful to argue with farmers as to the advantage of accepting and doing the right thing, if we could only show them *how* to do it and how it should be done. As soon as you can show the farmer how to pay for milk according to its value at cheese factories and creameries, he will go with you. In making butter, it is very easy to frame an accurate basis for distributing the proceeds. The quantity of butter-fat bears a somewhat constant relation to the quantity of butter which can be made from the milk. If you add to the

butter-fat about one-sixth of something else, which sells at the same price as the butter-fat (although intrinsically not really worth as much), what is the result? In every six parts, five will be butter-fat and one something inferior. Yet all these parts are selling at the price of the butter-fat. That sixth or added part is largely water, yet owing to its associations with excellent butter-fat it will bring an equal price with the butter-fat. You have in cheese three main constituents coming from milk—fat, casein and water. Now a certain part of the water in milk has a value. I can sell some of the water at 10 cents a pound, if I receive that price for my cheese. Water, like other things, gets an acquired and accredited value by the company in which it is found. For instance, I had a cheese-maker once, who was an awfully untidy fellow, and did not make fine cheese regularly. I bore with his infirmities, and he is now a good cheese-maker. The last time I visited his factory it was as clear as his wife's parlour. He got married to a good, smart, tidy woman, and since that time, from being much in her good company, he has been improved in like manner. You will never find a consumer of cheese finding fault with the water in cheese, if it is in good company. If you have too much water for the fat or for the casein, the cheese will go off flavour. But if the water is in its right place and proportion, you will have a well flavoured and a merchantable cheese. The casein alone will not determine the value of the milk for cheese-making; neither will the fat; the water must be there in the proper amount. It is only when there is the proper proportion of these three that the fat is a sufficient standard for valuation. We must be fair. I have seven or eight assistants, and there is not a man of them who would not work his finger nails off for the good of the department. My friend Mr. Ruddick did a lot of good work at the experimental factory in Perth. Let me give you a few points in regard to his work there. Extending over a considerable period, we had cheese made from milk containing an average of 3.86 per cent of fat. There was one large vat with two partitions put in, making three compartments. The milk from all the patrons was tested and put into three classes—rich, medium and poor. We made cheese from these three. The average for the rich milk was 3.86. In the medium compartment was put milk averaging 3.6, and in the third compartment was placed the poor milk, which averaged 3.45. These are the averages for nine days in each case. That is not a wide difference, but it was as wide as we could get and fill the compartments. The process of manufacture was uniform in each case. The richest milk in the last half of July and the first week in August required on an average 10.38 lb. of milk to the pound of cheese. (The average of the Province of Ontario for that season of the year was over 11 lb. with cheese made in the same way.) The average of the middle compartment was 10.84 lb. of milk to a pound of cheese, and the average of the third lot was 11.21 lb. In milk containing between three and four per cent of fat the gain in the percentage of fat becomes more important, as in this case every two-tenths of a per cent of fat would give about three-tenths of a pound of cheese additional per 100 lb. of milk. The average yield of cured cheese per 100 lb. of milk is indicated in the following table:—

Average per cent. of fat in milk,	3.86	3.60	3.45.
Yield of cheese per 100 lb. of milk.	9.63 lb.	9.22 lb.	8.92 lb.

It appears that the richer the milk is in fat, up to four per cent, the larger is the quantity of water which can be retained with the other constituents of cheese without deterioration to its quality. In ordinary cheese-making, where you have milk containing four per cent of fat, you have reached the maximum limit, and beyond that you cannot increase the per cent of water that will be retained in the cheese with advantage, and you do not increase the value of the cheese per pound.

Near London I had Mr. Dillon carrying on a series of tests, and I say without hesitation that in looking over the whole Dominion of Canada I do not know Mr. Dillon's superior as a cheese-maker. Like other good men, he has a few equals. We got a wider range of quality in the milk as to richness at this factory. From

one compartment we skimmed a little on a few occasions in order to get the difference wider. We had three averages of 2.91, 3.46 and 4.13 per cent of butter-fat in the milk respectively. Each average represents from nine to twelve tests. For the richest milk in this case, the number of pounds of milk required to yield a pound of cured cheese was 10.01; the average required for the medium milk was 10.67 lb., and the average for the third or compartment of poorest milk was 11.71 lb. All the cheese were made by the same man, in the same factory and according to the same system. The cheese-maker can take milk containing a low percentage of fat and make from it a large quantity of cheese, if he be a capable and clever maker. He may even in a large measure replace fat by skill, and make money from poor milk by putting skill into it. But no maker can do that successfully and honestly, with our present market conditions, when milk goes below three per cent of fat. You obtain a large additional weight of cheese from richer milk, and thus a man who furnishes to a factory milk containing a large percentage of butter-fat is entitled to a greater share of the cheese, since more weight of cheese comes from his milk than comes from the milk of other men whose cows give poor milk. If two farms of different values are together it would not do to pool the money from the sale of them, and divide the amount evenly between the two sellers. One farmer would lose and the other would gain by the transaction. We have stored some of these cheese in the curing room at Ottawa, and will keep them until next summer. I have also sent some of each of the three kinds to the old country, and I am waiting to see if the English dealers will endorse my scale of valuation, as to the relative values of milk containing different percentages of fat. I think that the addition of each per cent of fat to the milk between 3 and 4 per cent will add $\frac{5}{8}$ of a cent per lb. to the value of the cheese. The butter-fat in some measure adds to the value of the other constituents of milk. Let me put it in the following manner:—A farmer sends milk containing 3 per cent of butter-fat to a cheese factory and gets so much money. Another farmer sends milk containing 4 per cent of fat to the same factory. According to a scale which values milk for cheese-making according to its percentage of fat only, the latter will get one-third more money per 100 lb. of milk than the patron who furnished the 3 per cent. milk. I do not say that his milk will make one-third more cheese, but in my opinion it will have one-third more value in cheese-making when both the quantity of the cheese and its quality are considered.

In ordinary work a few things have to be guarded against in using the Babcock tester. I have come across a pipette furnished with a Babcock instrument which contained more or less than the required 17.6 c. centimetres of milk. You cannot depend upon the absolute accuracy of the pipette, unless it be warranted by a competent and reliable authority. If you test milk at a creamery, a patron should be paid for about one-tenth more butter than the weight of the actual butter-fat. In the working of the Babcock machine there will be sometimes a loss of speed in the whirler by the slipping of the belt. The bottles require whirling to the extent of at least 5,000 revolutions in order to get a proper reading of the fat.

Mr. D. M. MACPHERSON.—Has the speed any effect?

Prof. ROBERTSON.—I do not think that mere speed, without enough time, would give sufficient separation. There has been a good deal of difficulty in getting rid of the flocculent spots of curd. The use of the correct quantity of sulphuric acid of 1.82 sp. gr., and a thorough shaking of the contents of the bottle before they are put in the whirler, will prevent that trouble. The difficulty has occurred oftenest in making tests with composite samples of milk which have become sour. Dr. Babcock says: "It may be entirely avoided by filling the bottle with a hot mixture of equal parts of sulphuric acid and water, instead of water alone." It is not easy to read accurately if the bottles be allowed to cool. The water should be added as hot as practicable. In connection with some prosecutions for tampering with milk by patrons of factories, I have been written to by lawyers, patrons and makers. And I have to say that I believe there have been some prosecutions of honest men. I would rather that fifty guilty men should go unpunished than wound an innocent

man who was honest. (Applause.) It is not fair to say: "We will settle with you for \$25, or we'll prosecute you." Some men will say: "I am innocent and will fight you;" but others again will say, "I am innocent, but there is my wife and family, and if I do not settle, although I am innocent, the charge will get out and it may stain or ruin my reputation." Pay for a man's milk according to its value, and eliminate all these unpleasant bickerings and prosecutions. If a man sends you good milk, pay him for it; and if he sends you poor milk, pay him for it according to its quality. Put that proposition before the farmers, and nine-tenths of your patrons will adopt it. Otherwise you put a temptation before men to send poor milk, for if a man can get the same price for milk of poor quality that another milk of richer character fetches, there is no inducement for him to improve the quality of that inferior milk. By the use of the Babcock tester it is easy to calculate the total quantity of fat in any patron's milk. Then the total quantity of butter-fat in all the milk furnished during the period for which a distribution is to be made can be ascertained. The total quantity of cheese or butter may be taken; but that is not an essential factor in the final calculation. The total quantity of butter-fat represents for all purposes of distribution the total quantity of milk. Then by dividing the total amount of money to be distributed by the number of pounds of butter-fat, the value of each pound of butter-fat will be ascertained. Each patron will be entitled to the amount of money which is represented by multiplying the total number of pounds of butter-fat in the milk furnished by him by the value of the butter-fat per pound. That will provide for a simple and fair distribution of the proceeds. The milk should be tested at least twice a week. That may be done most thoroughly by putting one-third of the full quantity of 17.5 c.c. of milk into the test bottles every morning, and completing the test every third day. If the dairymen keep on paying for poor milk—even if it be pure—at the price of rich milk, and then continue to pay for rich milk—also pure—at the price of poor milk, and persist in the indiscriminate pooling of rich and poor at the same price, then the poor milk will ye have with you always.

(6.) MILK TESTING FOR CREAMERIES.

Prof. ROBERTSON was next introduced. He said: Mr. President and Gentlemen, I am very glad to come again to Brockville to speak to the Ontario Creameries' Association.

There has been a good deal of trouble over the whole province during recent years by reason of suspicions that have arisen concerning the honesty of dairymen who are patrons of co-operative factories. A very large number of prosecutions have been instituted because some men were suspected of taking something out of or putting something into the milk. As I came on the train this afternoon, I sat for a long distance in a compartment where two inspectors for insurance companies were discussing their business. One said that at a point not more than a hundred miles from here, he had visited a risk that they carried, and the local agent said to him, "When you go back to the head office write and cancel the policy on that farm property; the occupant can hardly be trusted." In a short time the local agent wrote back, "You can cancel that cancellation and leave the policy in force, as the suspected person has moved away." You see! The risk of damage to the farm property was not so much from accident, as from the moral or immoral quality of the man who occupied the premises. Now, this moral quality of the man in co-operative dairying is an element you have to meet and provide for; and you can never fully meet that by any system of inspection, prosecution or fine. But if you can get down to a basis by which you will pay a patron of a factory precisely for what the milk is worth, you will eliminate the whole of the immoral desire that tends to adulterate the milk. A man will not keep so much cream for the coffee, or will not think it worth while to add water to his milk cans, if he be paid for their actual

contents—milk, skimmed-milk or water, as the case may be. By this means you will prevent the man from being tempted to yield to doing a thing that is wrong, for the sake of the money he can make by it.

Let me give you an illustration. I go occasionally to the live stock markets. I see a steer that weighs 1,000 pounds brought there by one farmer—a steer of poor breeding and worse feeding—a steer of inferior quality, worth 3 cents a pound. I find another farmer with his beast better bred and fed and housed, weighing the same—1,000 pounds—worth 5 cents a pound. One is worth \$30 and the other \$50, and there are 1,000 pounds weight in each. Do you suppose you would find the farmer owning the better animal prepared to say to the other, “We will divide the sum total of the value of the two and take \$40 each?” I tell you nay; and you will find the seller who got only \$30 wondering why the other got \$20 more than he, until he has a better beast next time.

Now, in all our co-operative factories for cheese-making and butter-making we can never hope to have durable satisfaction unless we have fair play. Every body wants that, and every body says he is going to get and give that. If you can merely show the farmers how to establish a basis of fair play, you will not find a single man who will offer any opposition publicly. I never knew a man mean enough to say he would not give his neighbour fair play. Sometimes sayings and doings do not quite agree.

Then we have had some suspicion aroused because the farmers have known they were not getting fair play, and a few men have become dissatisfied, until the element of distrust has done more to hinder the progress of creameries and cheese factories than anything else. As soon as people get suspicious of one another they lose all enthusiasm in and for their work. The practice of paying for the milk at the creameries by the pound, regardless of quality, does harm to both classes of patrons—harm to the one who sends rich milk, because he does not get what his milk is worth, and more harm to the other man who sends the poor milk, because he gets something for nothing. As soon as you find a man getting that, he is deprived of the incentive to provide and do something better. If you furnish the man with that incentive, he goes along producing the purest and best quality at the highest profit to himself.

Then I think you may take it for granted that the farmers of the whole Dominion are quite willing to adopt a basis for the payment of milk which shall be fair, if they are taught how to do it. All through my experience with farmers I have observed this: I have found a readiness to do what they believe to be right when they see how it can be done. There is more often a difficulty to see the right way, than a want of willingness to walk in it.

Now for butter-making there can be no difficulty in paying for milk according to its real value, if you can discover precisely the percentage of butter-fat which it contains. Butter is not all butter-fat, but five-sixths of all good butter is butter-fat. Then one-sixth more is added from other constituents of the milk. We may include the salt in this one-sixth. If 5 lb. out of every 6 lb. are butter-fat, it follows that the more butter-fat the farmer furnishes the more butter his milk will make, and the quantity it will make will vary according to the butter-fat in his milk. Now, this other one-sixth portion of butter is largely water. In some of the butter which I have just been examining at your exhibition here there has been more than a sixth of its weight of water, and that is one of the chief faults the butter in the adjoining-room is characterized by, in the opinion of Mr. McKergow and myself. That defect is caused by creamery-men washing the butter in the churn during winter weather, with water as cold as they would use during July. The temperature of the water in winter should not be below fifty-eight degrees. If you try to get at the value of the milk for butter-making by any other constituent than the butter-fat you will fail.

Let me give you a few figures I copied the day before yesterday in a large creamery I had the advantage of inspecting. I suppose many of you have heard of

the St. Alban's creamery, Vermont. They make some five tons of butter a day in the summer time. They have about 700 patrons. Now, here are the reported values of the milk at that creamery for June, July, August, September and October. I give you the lowest and highest each month, showing the variation in the butter value of milk per 100 lb.

	Lowest.	Highest.
June.....	56 cents.	81 cents.
July.....	55 "	86 "
August.....	62 "	95 "
September.....	77 "	131 "
October.....	92 "	153 "

You will see that during October the milk from one man was worth 61 cents per hundred pounds more than the milk from some other man. The farmer, as soon as he finds he is paid for his milk according to its true quality, will keep better cows, more cows, and give them better care. I need not reason any more to show that this is the only fair basis upon which to carry on the co-operative creamery business. Now, the Babcock milk tester, invented by Dr. S. M. Babcock, of Wisconsin, provides a very simple, accurate and reliable method for estimating the butter-fat in milk. Every dairyman in the land is indebted to Dr. Babcock for the magnificent help which he has rendered to the dairy interests of the world. With rare unselfish public spirit, he has given his invention free to the community. I know of no better or greater boon in the way of a testing apparatus for dairymen than the Babcock milk tester. They owe it to the ability, patient research and generosity of this distinguished chemist.

For ordinary practice in the dairy I may point out to you a few things that have come to my knowledge as to the way of handling milk in testing by the easiest methods and to save labour. A test made once a week will not give a quite accurate indication of the average quality of that milk for the week. The milk will fluctuate in quality from day to day. It will not vary much from day to day in a herd, but a great deal in the individual cow. The only way is to have samples taken oftener than once a week. One of the best ways I have learned so far was described by ex-Governor Hoard at Cobourg. A sample is taken from each patron's milk every day to the quantity of one-third of the 17.5 c.c. required for a test. Then the full test is completed twice a week or every third day. It saves labour, and in that way you get a true test of the quality of the milk every day. I therefore recommend the method which they are pursuing in Wisconsin for economy, efficiency and reliability. Then, in the handling of these samples, the butter-maker can never be too careful to make sure that the pipette with which he measures the sample of milk is of the exact capacity. We have found some of the measuring pipettes not true as to the size. If there were two in the factory, and the maker used one for one man's milk and the other for another, and they were not precisely alike, there would be a material difference in the result. They need to be of the same capacity exactly.

In the Babcock testers used in Ontario, I find some machines which are defective in regard to mechanical construction. Some are driven by a loose leather belt, which occasionally slips, and then the whirler is not driven so fast; and the speed being lessened the separation of the fat will not be complete. So there is need for having such a machine as will enable you to be quite sure that the required number of revolutions have been given. I have no hesitation in saying that, in my opinion, a machine driven by cog wheels or similar gearing is better than one driven by the kind of friction that I have referred to.

For convenience in adding the sulphuric acid to the test bottles we have used a rack, which may be circular or straight, for holding them after the samples of milk have been put in them. The acid is contained on a burette which is graduated to quantities of 17.5 c.c. By passing each bottle under the glass stop-cock of the

burette the correct quantity of acid can be added easily and speedily. The rack holding the bottles is then shaken with an oscillating and rotary motion, whereby the acid is mixed with the milk in all of the test bottles at the same time. (See figures on page 122.)

In the handling of the samples it is always advantageous to keep the bottles as hot as possible during the whirling, and until the percentage of fat is read in the neck of the bottle. Any cooling will interfere with the uniformity of the test. I have come across a man who thought he was quite right in measuring the quantity of fat in the neck of a bottle by a wooden scale which he had constructed. He had used a pair of calipers to measure the fat, and then put them on the scale and read the percentage of fat by its figures. The necks of some of the bottles are narrower than others, so you can never be too careful to read the percentage of fat on the scale marked on the neck of the identical bottle in which the sample was tested.

I shall make this further observation, that as soon as this method of payment is adopted you will find a great improvement in the quality of the milk and a perceptible increase in the quantity of fat in the milk, which comes from good housing, good feeding, good care and good breeding. As soon as a man finds that he is paid for his milk according to its quality he will take more care to produce milk of the best quality; and that will stimulate him to produce more butter-fat of a superior quality. There are very few neighbourhoods that will not respond to the pride of reputation, which comes from getting paid the highest price that is paid any other neighbourhood for what they have to sell. I have not made that quite clear. I do not think that the people around Brockville would furnish quite so much milk to the cheese factories if it were not that the Brockville cheese factories have an excellent reputation, and the patrons of the factories feel proud of their good name and success. Now, if you can help the farmers to get the highest possible price per hundred pounds for their milk in a certain neighbourhood, then every man will have more pride in his business; and if one feeder will make more milk of a better quality than his neighbours, they will make a point of finding out how it is done. On the other hand, if any neighbourhood supplies poor milk, which is pooled with rich milk and paid for at the same price, you will find that milk of poor quality from scrub cows will continue to prevail. Wherever buyers of cattle give the same price for all animals, there you will find the poorest animals, because the farmers have no incentive to keep better ones. Make a distinction and discrimination in the quality and a difference in the price, and then the whole business will respond. Thus an enhanced price will be secured for the whole output. There are few people whose moral stamina is so robust that they can refrain from leaning towards the wrong when it pays to do wrong. If a man finds it pays to do wrong he may not fall clean over that way, but he will lean that way. If you make it pay in cash to do right, you will help the man to lean that way.

FURTHER PARTICULARS ON THE BABCOCK MILK TESTER.

Since these addresses were delivered, we have carried on a series of tests at the experimental dairy at the Central Experimental Farm, (1) to compare the results which were obtained by testing samples immediately after they were measured into the test bottles, with the results from samples of the same milk which were left standing in the test bottles three and six days, respectively; (2) to compare the results from composite tests of milk with the mathematical average obtained from completing the tests every day of the several milks of which the composite samples were made up.

The following cuts illustrate two styles of wooden racks which have been made for holding the test bottles. They also provide for a convenient and rapid method of adding the acid to the samples. The rack shown in Figure 1 can be revolved on the upright spindle which rises from its foot.

FIG. 1.

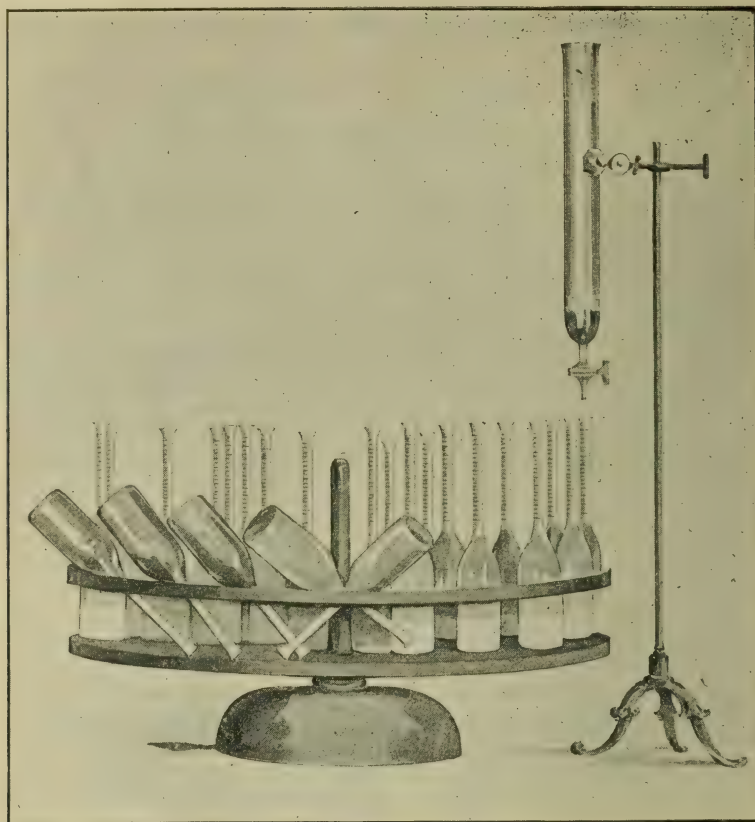
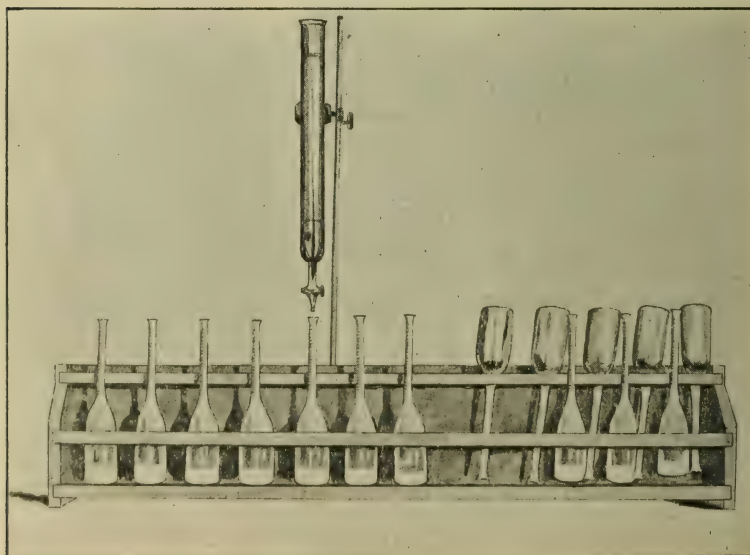


FIG. 2.



First Series.—Six samples of herd milk were measured with the 17·6 c.c. pipette into six test bottles. Two of the samples were completely tested at once; two of the samples were left for three days and then tested; the remaining two samples were left for six days and then tested. The test bottles stood in a rack in the working room of the dairy at a temperature of from 55 deg. to 65 deg. The milk at three days was sour but not coagulated; the milk at six days was sour and thickened. Three trials in duplicate were made, with the results which are shown in the following table:—

TABLE I.

	Tested Immediately, p. c. of fat.	Tested after 3 days, p. c. of fat.	Tested after 6 days, p. c. of fat.
First trial.....	4·1	3·9	3·9
	4·1	3·9	3·9
Second trial.....	3·5	3·5	3·5
	3·5	3·5	3·5
Third trial.....	3·2	3·2	3·2
	3·2	3·2	3·1

Second Series.—In this series, tests of herd milk were made in duplicate on each of two days; the mathematical averages from these four single tests are put in column 1 of Table II, for comparison with the results from composite samples obtained by taking a sample by an 8·8 c.c. pipette from the milk on each of the two days, and putting them in one test bottle. These composite samples were taken in duplicate, and the average results from them are put in column 2. Five trials in duplicate were made.

TABLE II.

	COLUMN 1. Average of tests on 2 days.	COLUMN 2. Average of composite sample tests.
First trial.....	3·95	3·9
Second trial.....	3·40	3·3
Third trial.....	3·65	3·6
Fourth trial.....	3·50	3·6
Fifth trial.....	3·75	3·8
Average of five trials.....	3·65	3·64

Third Series.—In this series, tests of herd milk were made in duplicate on each of three days; the mathematical averages from these six single tests are put in column 1 of Table III, for comparison with the results from composite samples obtained by taking a sample by a 5·9 c. c. pipette from the milk on each of the three days and putting them in one test bottle. These composite samples were taken in duplicate and the average results from them are put in column 2. Five trials in duplicate were made.

TABLE III.

	COLUMN 1. Average of tests on 3 days.	COLUMN 2. Average of composite sample tests.
First trial.....	3·66	3·60
Second trial.....	3·48	3·50
Third trial.....	3·73	3·50
Fourth trial.....	3·50	3·50
Fifth trial.....	3·97	4·17
Average of five trials.....	3·67	3·66

Fourth Series.—In this series, tests of herd milk were made in duplicate on each of six days; the mathematical averages from these twelve single tests are put in column 1 of Table IV, for comparison with the results from composite samples obtained by taking a sample by a 2·9 c. c. pipette from the milk of each of the six days and putting them in one bottle. These composite samples were taken in duplicate; they were all sour and thick before being tested; and the average results from them are put in column 2. Five trials in duplicate were made.

TABLE IV.

	COLUMN 1. Average of tests on 6 days.	COLUMN 2. Average of composite sample tests.
First trial	3·13	3·10
Second trial	3·75	3·60
Third trial	4·12	4·00
Fourth trial	3·57	3·50
Fifth trial	3·51	3·60
Average of five trials	3·61	3·56

In some of the composite tests it was difficult to obtain clear readings, on account of the fat being charred and containing flocculent spots of curdy matter. By using a smaller quantity of sulphuric acid at the beginning of the tests and "filling the bottles with a hot mixture of equal parts of sulphuric acid and water, instead of water alone, the trouble may be entirely avoided."

Fifth Series.—Samples of herd milk were taken daily and tests were completed in duplicate. The results are shown in column 1. Samples of the same milk were put in a glass-stoppered bottle in equal quantities on each of three days. These composite samples were tested in the usual manner by measuring the contents of the 17·6 c. c. pipette into test bottles in duplicate. They were quite sour but not thick. The results are shown in column 2. Five trials in duplicate were made.

TABLE V.

	COLUMN 1. Average of Tests on 3 Days.	COLUMN 2. Average of Composite Tests.
First trial	3·66	3·60
Second trial	3·80	3·70
Third trial	4·10	4·00
Fourth trial	3·77	3·80
Fifth trial	3·50	3·40
Average of five trials	3·76	3·70

From these trials it would appear that results which are practically accurate may be obtained by putting the contents of a 2·9 c. c. pipette into one of the test bottles every day for six days when the test may be completed. If the milk from any patron should vary very greatly from day to day in both quantity and quality, a slight error might be introduced. But in ordinary cheese factory and creamery work the six-day composite test seems to give accurate results with the least labour and expense.

PART VII.—CONDENSED MILK.

At the request of the Hon. the Minister of Finance an examination was made of the quality of three samples of condensed milk which were furnished. The chemical analyses were conducted by Mr. Frank T. Shutt, Chemist, Central Experimental Farm. His report is as follows:—

CONDENSED MILKS.

"The brands analysed were 'Reindeer Brand,' manufactured by the Condensed Milk and Canning Company, Truro, N.S., the 'Shamrock Brand,' of the Condensed Milk Company, of Limerick, Ireland, and the 'Fruit Brand,' of Cleeve Bros., London and Liverpool.

"On opening the tins a preliminary examination of the physical characters of the milk afforded me the following data:—

"'Reindeer Brand,' of a slightly yellowish tint. In an excellent state of preservation and evidently a well-made milk, perfectly homogeneous throughout. Readily soluble in water, yielding a milky fluid, very sweet, with a slightly 'boiled' taste.

"'Shamrock Brand,' of a bluish-white tint. In a good state of preservation, easily soluble in water—the resulting fluid having a marked flavour of boiled milk. One tin of this brand was found on opening to be somewhat fermented, evidently owing to imperfect soldering.

"'The Fruit Brand,' somewhat darker in colour than the milk of the 'Reindeer Brand.' Well made and in a good state of preservation, easily miscible in water, with a sweetish 'boiled' flavour.

The composition of the milks, as elicited by a careful and thorough analysis, is depicted in the subjoined table:

COMPOSITION OF CONDENSED MILKS.

	Reindeer Brand.	Shamrock Brand.	The Fruit Brand.
Water.....	25 67	30 22	27 70
Total solids.....	74 33	69 78	72 30
Fat.....	7 29	35	5 13
Curd (casein and albumen).....	8 44	10 44	9 31
Milk sugar.....	13 49	10 60	14 30
Cane sugar.....	43 16	46 06	41 50
Ash (mineral matter).....	1 95	2 13	2 06

"The foregoing data were obtained from duplicate estimations of each constituent. It is possible that a part of the cane sugar appears as milk sugar; in the process of manufacture some of the cane sugar may be converted into a form of sugar that by analysis would be determined with the milk sugar.

"The following table may be useful in showing that when condensed milk is diluted until it contains a percentage of solids about equal to the percentage of solids in whole pure milk, it is not a complete or well balanced food. This is owing to the large proportion of cane sugar in the total solids, the sugar being added for the purpose of preservation.

"If to one measure of these milks five measures of water be added, the composition of the resulting fluid will be as follows. The analysis of an average sample of pure milk is here added for the sake of comparison:—

	Reindeer Brand.	Shamrock Brand.	The Fruit Brand.	Pure, average Milk.
Water.....	87 50	88 34	87 95	87 25
Total solids.....	12 50	11 66	12 05	12 75
Fat.....	1 21	0 06	0 85	3 50
Curd.....	1 41	1 74	1 55	3 90
Milk sugar.....	2 25	1 80	2 38	4 60
Cane sugar.....	7 20	7 63	6 92	.....
Ash.....	0 33	0 38	0 35	0 75

"It will be seen that these are all 'sweetened' condensed milks, cane sugar being largely added as a preservative during evaporation. It has been held until quite lately that the addition of cane sugar is necessary for keeping the milk in good condition. By an improved process, however, unsweetened condensed milk is now manufactured in Switzerland. This is said to be of excellent quality. I do not think it is to be found in the Canadian markets.

"In the manufacture of condensed milk, when whole milk is concentrated, unless the greatest care be exercised, oily globules separate, and the flavour becomes more or less rancid. It is, however, apparent, from the condition and analysis of the 'Reindeer' and 'Fruit' brands, that excessive skimming, such as has been practised in the case of the 'Shamrock' milk, is not required in order to preserve a good flavour. The unsweetened condensed milk before alluded to is whole milk, concentrated to one-third of its bulk. It is, however, not free from the 'boiled' flavour, apparently an inevitable result of concentration.

"Although condensed milk is an extremely valuable preparation, it cannot be considered as a perfect substitute for new milk, on account of its poorness in fat, its peculiar flavour and diminished palatability, and its excess of cane sugar.

"Great care and skill are requisite in the concentration of milk, and it should be the object of the manufacturer to avoid, as far as possible, the development of the boiled flavour, retaining, at the same time, the butter-fat of whole milk and avoiding the excessive use of cane sugar.

"Flavour is perhaps of as much importance as any other factor in determining the quality of a condensed milk, and in this respect the 'Reindeer' brand, made at Truro, N.S., takes the first place among those examined. Its condition betokens care in its manufacture, and the tins have been soldered air-tight. In composition it is somewhat richer than the 'Fruit' brand.

"The 'Shamrock' condensed milk is the poorest of the three, both in composition and flavour. It is practically fat-free, and has a marked taste.

"The 'Fruit' brand is a good milk, and in most respects may be considered equal to the 'Reindeer' milk. Its condition, flavour and composition testify to its excellence as a sweetened condensed milk."

Besides the foregoing report of Mr. Shutt, I beg to submit the following observations for your further information:—

1. Two kinds of condensed milk are now manufactured and sold in considerable quantities in the United States and Great Britain. The one kind is simply a condensation of milk, which has been obtained by depriving the milk of a portion of its water. This sort is prepared mainly for infants and invalids, and is adapted for almost immediate consumption only. The other (the common condensed milk of commerce) is condensed and preserved milk to which has been added from 35 per cent to 50 per cent of its total weight of cane sugar. It is almost invariably sold in tin cans hermetically sealed. The sizes are one-half pound and one pound tins. So far, no method of preserving a simple condensation of milk without the addition of sugar has been successful in keeping it sound after the tins are opened.

2. The condensation of milk may be described as a reduction of $4\frac{1}{2}$ parts of milk into 1 part of condensed milk, to which should be added $\frac{3}{4}$ of 1 part of cane sugar. It will be readily seen that such a preparation cannot take the place of whole milk as food for invalids or children; but it may be and is used extensively and acceptably for tea, coffee, the making of puddings, custards, &c.

3. The desirable qualities in a condensed and preserved milk are the absence of unpleasant cheesy or fermented taste or smell; the absence of undissolved sugar; the colour nearly white, with a slightly yellowish or cream tinge; and such a consistency of body as will dissolve readily and completely in about 4 parts of cold water without the presence of any flocculent specks of curd or fat.

4. The trade in condensed milk in Canada is a rather small one. Almost the entire local consumption is met from the supply from the milk-condensing establishment, at Truro, N.S. For the year ending June, 1890, the value of the condensed milk imported and entered as for home consumption in Canada was \$119.

The following table shows the imports of condensed milk into Great Britain for 1890:—

	Cwts.	
Norway	61,244	£124,472
Germany.....	11,441	19,086
Holland.....	123,257	262,850
Belgium	28,750	68,586
France	180,149	365,004
United States.....	2,512	7,482
Other foreign countries.....	35	71
Total from British possessions.....	38	74
	<u>407,426</u>	<u>£847,625</u>
1888	352,332	
1889	<u>339,892</u>	

This trade in Great Britain is a constantly growing one. The trade in food products always waits upon the superior quality of the articles or commodities which are offered. I am convinced that Canada offers excellent opportunities for a very large extension of the manufacture of condensed milk. This is a product which can be transported a long distance safely and at a small percentage of its value for transportation charges. The "Reindeer" brand, produced at Truro, N.S., is evidence that an excellent quality of milk can be produced here.

5. In regard to qualities, the following are the comparisons which I made when the cans were opened:—

"Reindeer," from the Condensed Milk and Canning Company, of Truro, N.S.:

Flavour—Nearly the natural flavour of sweetened milk, fresh and clean to the taste, slightly scalded or "boiled" flavour. In this respect, slightly better than the "Fruit" brand from Messrs. Cleeve Bros., of London and Liverpool, and very much superior to the "Shamrock" brand from the same firm.

Body, or consistency—Uniform and apparently wholly soluble.

Odour—Agreeable, not at all fermented.

Colour—White, with a yellowish or cream tinge.

"Shamrock," from Messrs. Cleeve Bros., London and Liverpool.

Flavour—Cheesy taste.

Body—Apparently wholly soluble.

Odour—Fermented odour or strong smell of yeast.

Colour—White, with a slightly bluish shade.

Decidedly inferior in quality to the other two samples.

"Fruit" brand, from Messrs. Cleeve Bros., London and Liverpool:

Flavour—Much like the "Reindeer" brand, but not so delicate and fine.

Body—Apparently wholly soluble.

Odour—Smells slightly like yeast.

Colour—Natural, with a slightly yellowish tinge.

6. For the guidance of those interested, I may state that the patrons who furnished milk to cheese factories in Ontario for the past three years realized on an average at their own milk-stands about 70 cents per hundred pounds net; 450 pounds of milk, 75 pounds of granulated sugar, plus the cost of collecting the milk, manufacturing and marketing the product, would yield 100 pounds of condensed preserved milk. The contract selling price in England for such milk in 1 pound tins is usually about 38 shillings, or \$9.12 per net 96-pounds' case.

REPORT OF THE ASSISTANT DAIRY COMMISSIONER.

(J. C. CHAPAIS, Esq.)

ST. DENIS, P.Q., December 31st, 1891.

To Prof. JAMES W. ROBERTSON,
Dairy Commissioner, Ottawa.

SIR,—I have the honour to present you my annual report for the year 1891, in my capacity as Assistant Dairy Commissioner for the Dominion.

I have had to give my attention this year wholly to the Province of Quebec, which I have travelled almost all over, as you will see in the detailed account of my work which I give you lower down.

SUMMARY OF MY OPERATIONS FOR THE YEAR 1891.

Before telling you about the information I have been called upon to give, I will make for you a summary of my visits, in this small table, indicating the several counties and the different localities in each county where I went in the course of the present year.

TABLE OF THE LOCALITIES VISITED IN THE YEAR 1891.

COUNTY.	LOCALITY.	COUNTY.	LOCALITY.
Arthabaska.	St. Norbert.	Megantic.	Somerset.
"	Warwick.	Missisquoi.	Stanbridge Station.
Bagot.	St. Hughes.	Montmagny.	St. Thomas.
"	St. Liboire.	Montmorency.	Ste. Anne de Beaupré.
Beauce.	St. Georges.	Napierville.	St. Cyprien.
"	St. Joseph.	Nicolet.	Gentilly.
Berthier.	St. Gabriel de Brandon.	Portneuf.	Les Ecureuils.
Champlain.	St. Anne de la Pêrade.	"	Point-aux-Trembles.
"	St. Tite.	"	St. Basile.
Charlevoix.	St. Paul's Bay.	Quebec.	Quebec.
"	Murray Bay.	Richmond.	Castlebar.
Chateauguay.	Ste. Martine.	Rimouski.	St. Fabien.
Chicoutimi.	Chicoutimi.	Rouville.	L'Ange Gardien.
Compton.	Ste. Edwidge de Clifton.	"	St. Césaire.
Deux-Montagnes.	St. Hermas.	St. Hyacinthe.	La Présentation.
Kamouraska.	St. Denis.	"	St. Hyacinthe.
Lake St. John.	Hébertville.	Shefford.	Roxton Falls.
"	Roberval.	"	Waterloo.
"	St. Jérôme.	Sherbrooke.	Sherbrooke.
"	St. Prime.	Stanstead.	Barnston.
L'Assomption.	L'Assomption.	"	Coaticook.
L'Islet.	L'Islet.	Témiscouata.	L'Isle Verte.
Lotbinière.	St. Flavien.	Verchères.	St. Marc.
Maskinongé.	Pont de Maskinongé.	Yamaska.	Baie du Febvre.

OBJECTS OF THESE VISITS.

My visits, as indicated in this table, were made with four different objects in view:—

1. In some places I have been invited to deliver lectures on agriculture in its relation to the dairy industry.

2. Elsewhere my co-operation has been requested to help in the organization of factory syndicates.

3. The most important part of my work has been a journey in company with an expert in the manufacture of butter and cheese, to give theoretical and practical lessons on the best methods of handling milk.

4. Lastly, I have been invited to visit agricultural exhibitions, and deliver at these exhibitions lectures on dairying.

The fact of having different objects in making my visits has brought me to visit a few localities more than once; this explains why the total number of my visits is higher than the number of mentioned localities. I had thus to go twice to Pointe aux Trembles and St. Basile, in Portneuf County; to Coaticook, in Stanstead County; to St. Hyacinthe, in St. Hyacinthe County; and to Baie du Febvre, in Yamaska County.

FIGURES IN REFERENCE TO MY VISITS.

To finish this detail, I will add before going further, that I have made 54 visits, in 48 different localities, situated in 34 counties. During these visits lectures, lessons in dairy work, and sometimes both, were given before 6,000 farmers, 142 cheese-makers, 26 butter-makers and 8 syndicate inspectors.

Besides the time occupied in my visits I have worked at arranging my special and annual reports, at the translation of the official reports and bulletins of our department, at the making out of a full and complete list of factories and of butter and cheese-makers of the Province of Quebec, and I have kept up a regular correspondence with a good number of butter and cheese-makers and farmers, to whom I have given information and sent documents such as bulletins, reports and circulars of our department; the whole of which makes a total amount of about 2,000.

Perhaps you will notice that, though the number of my visits for this year is larger than the number of my last year's visits, the number of farmers I have met is smaller. This comes from two causes: The first is that 10 out of the 54 visits made this year were made specially for the organization of factory syndicates and were attended only by factory owners and butter and cheese-makers; the second is that, at the meetings held from the 15th of July to the 5th of August, 13 in number, I have met but a very small number of people, this time being the hay-making season, and consequently farmers are kept at work during all the day and also the evening in the field during that period.

I will now try to give you an idea of the information I have given during my visits.

THE DAIRY INDUSTRY IN ITS RELATION TO AGRICULTURE.

I have been invited to give these lectures in eleven localities situated in nine counties, as follows:—

COUNTY.	LOCALITY.	COUNTY.	LOCALITY.
Arthabaska.	Warwick.	Napierville.	St. Cyprien.
Beauce.	St. George.	Portneuf.	Les Ecureuils.
Champlain.	St. Tite.	do	Pointe aux Trembles.
Compton.	Ste. Edwidge.	do	St. Basile.
Lake St. John.	Roberval.	Stanstead.	Coaticook.
Montmorency.	Ste. Anne de Beaupré.		

I give here a summary of the lectures on agriculture in its relation to the dairy industry which I have delivered in the different localities:—

Considerations on the causes of Land Impoverishment by bad culture.—Land becomes poor from culture, because it yields its own substance to the crop.

Culture of grain and hay to be sold on markets impoverishes the land more than the culture of grain and forage grown to be fed to the animals of the farm.

A proportion of only about 15 per cent of the substance of forage and grain fed to cattle is assimilated by the eater, and almost all the remainder, *i.e.*, nearly 85 per cent is given back, in the shape of manure to the land.

On the contrary, grain and hay sold in the markets leave only straw to the land, and consequently make it much poorer.

In the Province of Quebec, grain culture pays no more because most of the farm lands are exhausted and give only very poor crops, and therefore cannot compete with the other provinces of the Dominion.

Another reason which makes grain culture precarious in this province, is the variability of temperature during the season of spring which causes often late frosts and during autumn which brings early frosts.

We must then look for another source of revenue enabling us to overcome those variations of temperature and to return to the land, to a certain extent, its fertility while giving more profit to the farmer.

Cattle Raising is easily done in the Province of Quebec. For what object should that cattle raising be made?—The climate of the Province of Quebec is perfectly adapted for forage culture and enables the farmer to keep plenty of cattle.

What kind of cattle is to be kept? Is there any profit in raising cattle for meat production, in this province? The answer is no, for almost all the districts of the province. The farmer who wants to feed for meat is obliged to keep his cattle in the stable during 8 months, on account of climatic inclemency. He must, therefore, make an ample provision for fodder for these 8 months, and feed plenty of grain, which costs him very much, owing to the poor crops yielded by the land. This puts the production of meat at too much cost, taking into consideration the price of food, the work required by that long wintering in the stable, and the result is that he cannot make any profit in selling his meat at the low price at which he is able to sell it.

Advantages of the Dairy Industry. Measures taken to render it prosperous.—There remains for us in the dairy industry, the raising of cows for the production of milk, and the manufacture of that milk into butter and cheese.

Being convinced of the importance of that industry our legislators in the Federal as well in the Provincial Legislature deemed it expedient to give to it as much assistance as possible. Hence the creation of a dairy department affiliated with the Ottawa Central Experimental Farm; the appointment of special officers entrusted with the mission of furthering the interest of that industry; the granting of large sums of money to help on the organization of dairy associations, butter and cheese factories syndicates, and a system of inspection of factories and of the product which they manufacture.

Considerations on the Dairy Cow.—The cow is the basis of the dairy industry; but there are various breeds of cows. Some breeds are only fit for meat production and are quite useless for the dairyman. Others are essentially dairy breeds, such as the Ayrshire, the Jersey, the Guernsey and the Canadian (French).

Of these dairy breeds those best adapted to the ordinary class of farmers are the Ayrshire and the Canadian. The Ayrshire is a fine cow, of good size and giving a large flow of milk; but it requires good care, and if once neglected, it is very difficult to bring her back to her large milk production. On account of that, it can be recommended only to the well-to-do farmer who can always give her the best of care and food.

The Canadian cow of French origin, is truly the best cow for the Province of Quebec. Small in size, hardy, good milker, she possesses all the qualities adapted to our severe climate. Well taken care of, she gives an abundance of very rich milk and is equal to the best Ayrshires, while being much more easily and economically kept.

It is not sufficient to choose a good breed. It is also necessary to know how to choose the best milkers of the breed. To come to that: From the best milkers only should be selected and mated with the best milkers of the breed, and the offspring from these should be carefully raised. The calf of a bad milker is generally finer at its birth than the calf of a good milker, because the mother having given but little milk has had a chance to give more substance to her calf. We must therefore resist the temptation always felt to raise those calves which are the biggest at their birth.

The cow, after it is selected, must be well fed and to feed her well we must obtain what is needed from the farm.

To get from the land good pasture and good forage crops, we must treat it well. That treatment consists in returning to it in manure what has been taken from its substance by the preceding crops, in order to enable it to continue to produce without becoming exhausted.

Manure: its value; its preparation; its preservation; its use.—Good manuring can be made only with all the refuse matter on the farm, well prepared and well preserved and with a surplus of fertilizing matters to make up for that part of the crops which the animals have retained for their sustenance and their milk production.

Some precautions must be taken in order to prepare and preserve the farm manure. The liquid of the manure (urine) is very rich, but unfortunately is always lost to the greatest number of our farmers. To retain it, it is necessary to provide for its absorption by the means of litter, and then it enriches the dung very much. Straw must be as little used as possible for litter, because when well prepared it may constitute a good part of the food of cattle. But sawdust and dry muck make good litter. Manure contains nitrogen, a substance which is easily lost by evaporation. A good way to fix it in manure consists in sprinkling on the stable floor some land plaster or some superphosphate. Manure must be kept in a place having a water-tight bottom, to prevent urine from soaking into the ground or flowing away. A good and cheap manure shed can be made with common rough boards, provided the roof is water-tight and the bottom, *i.e.*, the soil, is hollowed a little to form a kind of basin, which should be coated with about three inches of well beaten clay. Care must be taken not to draw manure on the land in little heaps in autumn or winter, and leave it exposed to the air. By putting manure under cover and spreading it on the land only when it can be immediately ploughed in, the rain, sun and snow are prevented from having any action on it, and then it keeps all its strength.

The Law of Restitution.—Manure thus preserved enables the land to give excellent crops without getting exhausted, provided sufficient supplementary fertilizers are added, when needed, as a compensation for that part of the fertilizing matter of the land assimilated by the animals eating the crop. We must never forget that the restitution to the land of the fertilizing matter assimilated by animals is strictly indispensable in a good system of culture.

Care of the Cow.—To obtain from the cow all the milk she is able to give, we must provide her with:—

1. *A good Pasture in the spring of the year.*—No good pasture nor good meadows can be had if forage seeds are not sown. They must be sown in abundance, specially clovers, red, alsike and white, timothy, &c.

2. *Green Fodder of good quality during summer.*—When pasture grasses mature in July they become, plentiful as they may be, less adapted to the production of milk; hence it follows that its secretion by the cow becomes less abundant. This is the time when green fodder is wanted. After having ploughed in on a piece of land, a good coat of manure in autumn, four bushels per acre of tares, oats, peas, rye, &c., according to the quality of the land, should be sown on that piece, the following spring. The result is that about the middle of July, a large quantity of green fodder is available for increasing the secretion of the milk.

3. *A winter feeding leading to the production of Milk.*—This alimentation may be given under various forms. There is an excellent one within the reach of all farmers. Its elements are: hay, straw, meal or bran. Hay comes into the ration at the rate of two-thirds against one-third of straw. The whole must be passed through the hay cutter. Three or four pounds of meal or seven or eight pounds of wheat bran are given to each cow with all she can eat of the mixture of cut hay and straw every day. The only preparation needed for that ration is this: put 24 hours in advance, a layer of cut hay at the bottom of a box, moisten it with water at about the temperature of the stable (60 Fah.), and sprinkle on it a little meal or bran, put then a layer of straw and treat it in the same way, and then alternately the layers of cut hay and straw, moistened and sprinkled with meal or bran, till the box is full. Put on a cover loaded with a heavy weight on the box, and leave the mixture undisturbed for 24 hours.

Another form of winter feed for the production of milk is found in ensilage. I will not do more than mention ensilage here, a description of the system being given in the report of our department for last year. I will only repeat that ensilage ought not to be fed as a whole ration. We must add to it cut hay, straw, meal or bran.

With that system of summer and winter feeding milk is obtained from cows during ten months of the year and the production of butter in winter is insured at a season when that product is most profitable to the farmer.

Example of a system of Culture for the Production of Milk.—A system of culture for dairying with profit, in our province, while leaving to the land its fertility and furnishing the farmer what he wants for his own sustenance and the feeding of his horses, cattle, pigs, &c. consists in a mode of culture based on the following rotation, the trial of which has given excellent results:—

First Year.—Crop of oats, or of peas and oats (maslin) on pasture land ploughed the preceding autumn.

Second Year.—Ploughing in of manure in preceding autumn and crop of roots as cleaning crop or of green fodder or of fodder corn for silage.

Third Year.—Crop of barley and seeding of mixed clover seeds.

Fourth Year.—Crop of clover—autumn ploughing.

Fifth Year.—Crop of wheat. Seeding of mixed grasses for meadows.

Sixth and Seventh Years.—Crop of hay from meadow.

Eighth Year.—Crop of hay and top dressing of manure on meadow immediately after hay is carried away.

Ninth Year.—Crop of hay from meadow.

Tenth, Eleventh and Twelfth Years.—Pasture.

Necessary details in the keeping of Milch Cows.—Besides the food, cattle must get an abundance of good water, a temperate stable, well ventilated, well lighted, good attention with regard to cleanliness, dusting, currying and brushing.

1. *Abundance of Good Water.*—Ice-cold water is unsuitable for cattle and specially for cows in calf. It may be a cause of abortion. It occasions also a greater expense for food. It is unnecessary, therefore, to say that it is important to avoid the practice of sending cattle outdoors in winter to drink at the spring. On the other hand, there is no need to give hot or tepid water. Animals, the same as man, like to drink water which is neither too cool nor too warm.

2. *A Temperate Stable.*—A cow kept in a cold temperature eats very much without, however, giving milk. But heat in excess is also prejudicial; it interferes with the appetite of the cow and makes her weak. Sixty degrees (60° Fah.) Fahrenheit is about the temperature required.

3. *A well Ventilated Stable.*—Ventilators are of an absolute necessity for the good health of animals and also to get milk of good quality. Milk is always tainted in a stable which is not ventilated.

4. *A well Lighted Stable.*—Light is as necessary for beasts as it is for man and plants. A child who never sees the sun is weak and sickly. An animal kept in the dark has poor blood and becomes in a bad state of health. The sun is the generator of life.

5. *Attention to Cleanliness.*—An animal which lies sunk in his droppings always feels uneasy. A squalid and dirty cow is never in good health, because the pores of her skin are obstructed and prevent the production of natural perspiration. The floor of the stable must therefore be kept clean and cows must be curried, and combed or brushed.

All these conditions being fulfilled, we are sure to have healthy cows which will give during a long period plenty of good milk.

Use of the Milk.—What is to be done with that milk? It is clearly proved that the best system to use the milk in an economical and profitable way is the co-operative system, which consists in collecting the milk of several herds of cows in a central place to have it manufactured by an expert into butter or cheese.

Care of Milk.—But, to get from this system all the advantages it offers, the farmer must bring to the creamery or cheese factory a first-class milk. What is called a first-class milk is milk drawn from a healthy cow, cleanly milked, strained, aerated, cooled in well cleaned cans and brought natural, without addition of water or subtraction of cream, to the factory.

By-products of Milk.—The farmer draws from the factory, besides the value of his butter or cheese, skimmed milk or whey. These products represent for him a good value, since it has been found out that one hundred (100) pounds of skimmed milk make five (5) pounds of increase in the live weight of swine, and that one hundred (100) pounds of whey make two (2) pounds of increase.

LECTURES TO PROMOTE THE FORMATION OF SYNDICATES.

The Dairymen's Association of the Province of Quebec having obtained from the Provincial Government a special grant for the organization of butter and cheese factory syndicates, I have been brought to take an active part in that organization in my capacity as director of the society. Knowing the good results obtained from these syndicates and having been invited to co-operate in their establishment, as Assistant Dairy Commissioner, I have given my attention to it. My efforts together with those of the board of directors of the association have met with good success from the beginning.

For that work of organization, I have visited 7 localities distributed in 6 counties, as follows:—

COUNTY.	LOCALITY.	COUNTY.	LOCALITY.
Bagot.	St. Liboire.	Stafford.	Roxton Falls.
Megantic.	Somerset.	do	Waterloo.
Quebec.	Quebec.	Yamaska.	Baie du Febvre.
St. Hyacinthe.	St. Hyacinthe.		

Here is a summary of the lecture to promote the formation of Syndicates which I delivered in these localities:—

Progress of Dairy Industry.—The dairy industry has made much progress in the Province of Quebec these last years, but it has much work to do yet.

Bad Condition of the Butter Industry.—It is with difficulty that some of our butter can be marketed on foreign markets. We must also look for a solution of the difficulties experienced in the exportation of that product, and there is much to do in that direction. Our exportation instead of growing becomes smaller.

Considerations on the Cheese Industry.—As to cheese, the position is much better. To-day our cheese has a good name on the English market, and we must do our best in order to make that reputation still better than it is.

What Cheese is Wanted on the Foreign Markets?—With what foreign buyers reproach us is specially want of uniformity in the manufacture and boxing of our cheese. The English market, in fact, requires, in order to be able to give the highest price for a lot of cheese, what follows:—

Uniformity in flavour.

Uniformity in quality, which must be the best.

Uniformity in texture.

Uniformity in colour.

Uniformity in appearance.

Uniformity in style and boxing.

And, indeed, the buyer is quite right in requiring all this. A lot of cheese in which are found cheeses of different flavours more or less agreeable, of all qualities from the best to the worse, of all textures from the driest to the most sticky, of a most variable scale of colours, of all shapes and sizes and packed in boxes exhibiting different diameters and weights, and a more or less desirable quality of wood may be the source of heavy losses for the buyer, if he has not taken the precaution of leaving a wide margin between the buying price and the highest selling price of the last market where the cheese is to be sold.

Measures to be taken to give to the Market the Cheese looked for.—To attain that desirable and necessary uniformity which enables us to put on the market no cheese but that of first-class, we must obtain for all cheese-makers a uniform mode of manufacturing and boxing. This can be obtained only by the means of a uniform system of teaching, coming from one source only. That is the principle from which syndicates originated.

What is a Factories' Syndicate?—A syndicate is the union of a certain number of factories subscribing each a given amount of money to pay the salary and expenses of an inspector interested in the work of visiting every one of the syndicated factories a certain number of times determined on during the season, and of giving advice and lessons of instruction to the makers. These inspectors test the patrons' milk, prevent fraud and delivery of bad milk, which is the most frequent cause of bad cheese. They hold their authority from the Provincial Dairy Association, which delivers them diplomas, after they have been accepted by a board of official examiners. A general Syndicates' Inspector gives them their instructions, and makes them follow a uniform direction. In this manner the end is surely attained.

It is of great importance to all factories somewhat anxious to see their products quoted at the highest price in the market, to join the organization of syndicates. And if all of us will lend a hand to organize those syndicates everywhere, before long Canadian cheese will be quoted on the English market as being of a uniform and first-class quality, in the full sense of the meaning.

Work of Syndicates in 1891.—Before closing the summary of this lecture, I will add that ten syndicates were in operation in the Province of Quebec this year, and have given excellent results. In one of them, the owners of some factories had a loss of \$1,200 last year, because their cheese-makers had manufactured a second-class cheese. This year, after the organization of a syndicate, of which these factories were members, the same owners, with the same cheese-makers, have lost only \$200, which shows a proportion of five-sixths in the way of advantage. In another syndicate, less money was lost this year in all the syndicated factories than had been lost in only one factory last year, before the organization of the syndicate.

Cheese buyers have stated to us in many places where, last year, they had to make a close inspection of all the cheese before buying, they could, this year, buy first-class cheese by telegram. And, to end this, it is one of these syndicate factories which, at the Dominion Exhibition of dairy products at Sherbrooke took, this year, the *sweepstake* prize over all the exhibitors from all the provinces of the Dominion.

THEORETICAL AND PRACTICAL INSTRUCTIONS ON THE BETTER METHODS OF HANDLING MILK.

It had been understood in an interview I had with you, in Quebec, on the 26th of May last, that I would undertake a journey during the summer months, in the Province of Quebec, in company with Mr. C. C. MacDonald, one of the superintendents of experimental dairy stations, to give theoretical and practical instructions in the best methods of handling milk, to manufacture it either into butter or cheese. I prepared at once a circular, 1,000 copies of which were printed and distributed, giving notice that Mr. MacDonald and myself would visit some factories of the province as indicated.

Here is the text of that circular, with the programme of visits, which, however, has been somewhat modified by circumstances. Two distributions of that circular were made, one on 26th May, and the other on 26th June.

DOMINION OF CANADA.

DEPARTMENT OF AGRICULTURE.

JAMES W. ROBERTSON,
Dairy Commissioner,
Ottawa.

J. C. CHAPPAIS,
Assistant Dairy Commissioner,
St. Denis, P.Q.

OFFICE OF THE ASSISTANT DAIRY COMMISSIONER,
ST. DENIS, P.Q., 26th May, 1891.

SIR,—These are the dates* fixed for the visits to cheese factories, in the Province of Quebec, by the Assistant Dairy Commissioner and one of the Superintendents of Experimental Dairy Stations.

The aim of these visits is to give instructions in the best methods of making the test of milk and of manufacturing cheese of superior quality, in as many places as possible, and as promptly as the thing is practicable. This work from place to place is done as preliminary to experimental investigations, which will be made in many factories, during the last period of the season of manufacture.

The Superintendent will take with him a Babcock test apparatus for the testing of milk, and other new and useful apparatus for helping cheese-makers to find out what is the quality and condition of the milk they have to manufacture.

All the cheese-makers of other factories in the different districts are invited to meet the Assistant Dairy Commissioner and the Superintendent, in the place which is the most convenient for them. A public meeting of the patrons and other interested persons can be convened by the cheese-maker or agent of the factory, at these factories for four o'clock in the afternoon of the dates indicated thus *. At these meetings a demonstration will be made of milk testing, and information will be given on the best methods to follow for the care and preparation of milk to be brought to factories.

All communications and reports on the subject of these visits should be addressed to the Assistant Dairy Commissioner, at St. Denis, P.Q.

I have the honour to be, Sir,

Your obedient servant,

J. C. CHAPPAIS,
Assistant Dairy Commissioner.

I subsequently addressed to every owner or cheese-maker of the factories to be visited, a special circular of which I give a copy :—

ST. DENIS, KAMOURASKA, 1891.

Mr.

DEAR SIR,—We have taken the liberty to assign your factory as a place of meeting for the cheese-makers of your district, for the , in order to make before them the test of milk and give them information on cheese-making. Please be kind enough to keep, on the morning of the day appointed for our visit at your place, twenty-nine (29) samples of the milk of twenty-nine (29) of your patrons and one (1) sample of the milk from the vat, taken before the rennet is put in. We hope that you will be kind enough to invite your patrons, together with those of the factories in your neighbourhood, to come to your factory, on that day, at four o'clock in the afternoon, to attend the public meeting and hear the lecture.

I have the honour to be, Sir,

Your obedient servant,

J. C. CHAPPAIS,
Assistant Dominion Dairy Commissioner.

* NOTE.—For places and dates, see page 136.

COUNTY.	PARISH.	FACORY OWNER.	DATE.
Portneuf.....	St. Basile.....	Joseph Derome.....	*June 3-4.
do.....	Point aux Trembles.....	Cheese Factory Co.....	* do 4.
Champlain.....	St. Anne de la Pérade.....	N. E. Clément.....	* do 5-6.
Nicolet.....	Gentilly.....	Eusèbe Houlde.....	* do 8-9.
Yamaska.....	Baie du Febvre.....	Louis Lemire.....	* do 10-11.
Richmond.....	Castlebar.....	Taché & Freg.....	* do 12-13.
Arthabaska.....	St. Norbert.....	Germain St. Pierre.....	* do 15-16.
Lotbinière.....	St. Flavien.....	Lazare Bédard.....	* do 17-18.
L'Islet.....	L'Islet.....	Etienne Caron.....	* do 19-20.
Montmagny.....	Montmagny.....	N. Bernatchez.....	do 22-23.
Rimouski.....	St. Fabien.....	E. Hébert.....	* do 24-25.
Temiscouata.....	L'Isle Verte.....	Préfontaine et Frères.....	* do 25.
Kamouraska.....	St. Denis.....	Augustin Dionne.....	* do 26-27.
Beauce.....	St. Joseph.....	Joseph Lambert.....	*July 4.
Compton.....	Ste. Edwidge de Clifton.....	A. Gerin.....	* do 7.
Stanstead.....	Barnston.....	Chas. Wilkins.....	* do 8.
Bagot.....	St. Hughes.....	L. T. Brodeur.....	* do 9.
St. Hyacinthe.....	St. Hyacinthe.....	I. M. Archambault.....	* do 10.
Rouville.....	L'Ange Gardien.....	M. Bourbeau.....	* do 11.
do.....	St. Césaire.....	Isidore St. Pierre.....	do 11.
Missisquoi.....	Stanbridge Station.....	Julien Campbell.....	* do 13.
Verchères.....	St. Marc.....	Alexis Chicoine.....	* do 14-15.
Châteauguay.....	Ste. Martine.....	A. E. Désautels.....	* do 16.
Deux Montagnes.....	St. Hermas.....	B. Beauchamp.....	* do 17-18.
L'Assomption.....	L'Assomption.....	School of Agriculture.....	* do 20.
Berthier.....	St. Gabriel de Brandon.....	Georges Dubault.....	* do 21.
Maskinongé.....	Pont de Maskinongé.....	Ayotte's Cheese Factory.....	* do 22.
Lake St. John.....	St. Prime.....	St. Prime Butter Factory.....	* do 25.
do.....	St. Jérôme.....	Damase Jalbert.....	* do 27.
do.....	Hébertville.....	Hudon Butter Factory.....	* do 29.
Chicoutimi.....	Chicoutimi.....	Maltais Cheese Factory.....	* do 31.
Charlevoix.....	Murray Bay.....	Joseph Bouchard.....	*August 3.
do.....	St. Paul's Bay.....	Charles Martel.....	* do 5.

We began our journey the second (2nd) day of June, by visiting St. Basile, in Portneuf County, first point indicated in our programme, and we finished it on the fifth (5th) of August, at St. Paul's Bay, in Charlebois County, after having visited thirty-three (33) localities distributed in twenty-eight (28) counties.

Character of our Operations in our visits.—On entering the factory, Mr. MacDonald used to take the direction of the making for the day. After having found out by a close examination of the factory and its surroundings and by the inspection of the butter or cheese, what were the faults to reform, the difficulties to overcome and the ameliorations to make in the mode of fabrication, and the care to give to the manufactured products, we proceeded to give a practical lesson of manufacturing to the cheese-makers present. I used to make for him, in French, (as he was not familiar with that language), the theoretical demonstrations of his operations. It is in this way that we have demonstrated, amongst other things relatively new for those who were the object of our visits:—

1. *The Milk Test by means of the Babcock Tester.*—This apparatus is employed to determine, by means of sulphuric acid and a few easy manipulations, the richness of milk in fat. It is now in use everywhere, as well in Europe as in America and has been described in one of our bulletins for the current year.

2. *A method to find out at what moment Rennet must be put in Milk.*—This method (Harris' Rennet Test) consists in putting about one drachm (the eighth part of an ounce) of liquid of rennet in a gill of milk. It shows by the time taken by that milk to coagulate, if it is enough matured to receive the rennet.

3. *A method to find out the degree of Acidity of Milk.*—This is made by means of a substance extracted from coal-tar and called phenol-pâthallein and this method is called Bond's acid test.

4. *Verification of Thermometers, Lactometers, &c.*—We used to make by means of our corrected instruments the verification of the instruments employed in the

factories, and we have found that a good number of these instruments are defective and give false indications.

Explanation and Lecture.—Once the work of making was finished, all the explanations suggested by the day's operations were given in the most clear and simple manner and then I used to deliver a lecture to the patrons of the factory invited for the occasion.

This lecture was a condensation of those of which I have given a summary in the present report, and can be briefly recapitulated as follows:—

Necessity for the dairyman to produce the Greatest Possible Quantity of Milk in the cheapest possible way.

Means to obtain that result.—Judicious selection of cows, good feeding, good care.

Necessity for the dairyman to obtain the Greatest Possible Profit from his Milk.

Means to obtain that result.—Production of a wholesome milk by drawing it from healthy cows, cleanly milked, by straining, aerating and cooling it and preserving it in strictly clean cans, and by bringing it whole and natural to the factory, without addition of water or removal of cream. Incitement given, by means of voluntary subscriptions to the maker to join a syndicate, in order to benefit by the lessons of the inspector and to make a first-class product for the market.

Faults disclosed in these visits.—The greatest faults that we have disclosed while visiting factories are indicated here:—

Construction.—Defect in the buildings which, too often, are not at all what is required for a factory.

Curing-rooms.—Bad curing-rooms in which it is impossible to control the temperature.

Defective Instruments and Apparatus.—In quite a number of factories we have found cheese-makers making from 1 to 4 degrees higher or lower than the correct degree. Many vats have not the required apparatus to draw *quickly* from it the whey when it is necessary, a thing that is often to be done.

Cleanliness.—Unhappily, we have found much negligence in this respect, as well amongst cheese-makers as amongst factories. Dirty milk, badly or not at all strained, not aerated, brought in unclean cans. Utensils of manufacture not well washed, especially curd mills. Pools of whey stagnant under the floors, in the gutters. Whey tanks unwashed, placed too near the manufacturing or curing-room, slovenliness in the wearing apparel of the makers.

Negligence in Working.—A good number of makers, specially the young ones and apprentices, have an inclination to do their work in haste, without following the rules of good manufacture, which most of them know but take no notice of, in order to get clear of their work sooner.

Of course we strove against these faults, which happily are not found everywhere, indicating what was the remedy for every one of them.

If we have found faults, we have also met with what, if it is not perfection, is very near it. And, as praise is always more welcome than blame (though we give the name of none of the factories in fault), I think it is well to mention here two factories which certainly are very creditable to their owners and can be cited as models. It is for that reason that I name the butter factory of Messrs. Préfontaine Brothers, of l'Isle Verte, Temiscouata County, and the cheese factory of Mr. Charles Martel, of St. Paul's Bay, Charlevoix County.

I don't enter into the details of the tests and experiments made in each factory, Mr. MacDonald having kept a special and complete diary of his operations.

The Babcock Test and the Payment of Milk by its Value in Fat.—Before finishing this part of my report, I think fit to give as an indication of the good results of our visits, the purchase of several Babcock testers by syndicate inspectors, who find this machine to be one of the most useful as well as the most simple to put in operation. In fact, it is considered one of the best means to prevent fraud in the delivery of milk. They all say, by common consent, that its use will soon give the means of paying for the milk of each patron according to its true intrinsic value.

VISITS TO EXHIBITIONS.

I have visited this year only two exhibitions, those of Coaticook and Sherbrooke. I have been prevented from continuing my visits during the exhibition season by circumstances out of my control, which I have since indicated to you.

Great Exhibition of Dairy Products at Sherbrooke.—You have been in a position to judge by yourself, *de visu, tactu et gustu*, of the importance of the Sherbrooke exhibition from the dairying point of view. Ten years ago, nobody would have dared to anticipate such a splendid display of the products of that industry brought from all the provinces of the Dominion. This show was well fit to give the best possible idea of the progress made during these last years by the dairy industry in the Dominion of Canada.

CONCLUSION.

In closing the present report, I am in a position to assure you that, as far as regards the French-speaking element, whose interests in the matter of dairy industry are under my care, there is a decided movement of progress and amelioration. This is made evident:—

1. By the attention paid by farmers to the stretching out and improvement of their pastures and meadows.

2. By the marked emulation brought into cattle raising for milk production, as well in relation with the augmentation of the number of cows, as in relation to the good attention given to calves and cows.

3. By the interest taken by farmers, factory owners and butter and cheese-makers in the publications made to promote the progress of the dairy industry, in the meetings where it is specially spoken of as the great industry, in the lectures and experiments made to give them information in all its branches.

4. By the always increasing number of butter and cheese factories organized everywhere.

5. By the zeal evinced for the organization of factory syndicates, which are recognized to be the best means to reach perfection in the manufacture of dairy products.

I am happy to be able to finish my report of this year, by this statement of the progress of the industry with the prosperity of which in the Dominion we are interested, and I submit it to you with the hope that it will give you full information as to my work for the year 1891.

I have the honour to be, Sir,

Your obedient servant,

J. C. CHAPPAIS,

Assistant Dairy Commissioner.

PART IX.—REPORTS OF SUPERINTENDENTS OF EXPERIMENTAL
DAIRYING.

(1) REPORT OF THOMAS J. DILLON.

JAMES W. ROBERTSON, Esq.,
Dominion Dairy Commissioner,
Ottawa.

SIR,—I herewith submit my report for the season of 1891:—

My first work was done at the Salford factory on the first day of May. The first experiment was that of "low cooking," or "Grant" process. It followed work of a similar kind that I had been doing for Jas. L. Grant & Co., at the same factory. The milk was set at 84° Fah., and sufficient rennet was put in to coagulate it fit for cutting in 15 minutes, when it was cut into cubes a little smaller than dice. It was then stirred very carefully for about 20 minutes before applying the heat, after which we gradually raised the temperature to 87°, drew off a good share of the whey, and, as soon as acid was discernible, drew off the remainder and dipped the curd into a sink with strainer-cloth and slats. The acid developed and the curd ripened in good time, was milled; salted, and put to press in the ordinary way. I saw the cheese from time to time afterwards, and they were fine in every particular, with the exception of being a little soft, which defect might have been remedied by using a half pound more salt to the 100 lbs. of curd. The amount of salt used was $2\frac{3}{4}$ lbs. to the 1,000 lbs. of milk.

My next instructions were to meet the other Superintendents at the Brownsville factory, where we were to make cheese together for a few days and exchange ideas on all points that might prove beneficial in the after work. Mr. Ruddick's report will contain an account of the work done at Brownsville.

The next step was to visit the following factories according to a programme given me, viz.:—Galloways, near Ingersoll, 18th and 19th May; Newry, Perth County, 20th and 21st May; Bluevale, Huron County, 22nd and 23rd May; Goldstone, Wellington County, 25th and 26th May; Harriston, 27th May; Kenilworth, 29th May; Dundalk, Grey County, 1st and 2nd June; Cookstown, Simcoe County, 3rd June; Attercliffe Station, Haldimand County, 4th and 5th June. I was invited by telegram to visit Forks Road factory, and did so on the 6th of June. A visit to Norwich, on 9th and 10th June, was the last on the programme. I also visited Brownsville, Bayham, Burnside, Belmont, Booth's Corners, Culloden, Cotswood, Chatsworth, Dunns, East and West Oxford, Fewsters, Gore, Gladstone, Geary's, Laurel, Mount Elgin, Mount Forest, Nancekivell's, Red Star, Simmons', Springfield, Salford, Shelburne, Smith's, near Norwich, Tilsonburg, Wilkinson's, West Nissouri and a factory near Drumbo, making 40 in all.

Objects of Visits.

The object of these visits varied according to the different factories and cheese-makers. The first visits were made to give instruction in cheese-making, to tell the patrons the best means of producing and caring for milk; and to show them the workings of the Babcock testing machine, and the Lactometer. Later in the season quite a number of visits were made to give instruction in cheese-making only.

Testing Milk.

I tested milk at nearly all the factories named, and found some that tested as high as 5 per cent butter-fat, and some as low as 1.60 per cent. As my time was

nearly always arranged for ahead, I wrote to all those whose milk I found below 3 per cent, informing them of it, and telling what the vat tested—which was from 3·30 per cent to 3·70 per cent—and advising them also that there were four men travelling all the time in Ontario, west of Toronto, whose duty it was to test milk, and if they found anything wrong, follow it up by a prosecution. At the factory where I found the milk having so small a percentage of butter fat as 1·60, I went out and saw the cows milked night and morning, and took samples of each mess, which, when tested, showed 3 per cent butter-fat. I laid the necessary information before a magistrate, and the matter was finally settled with the directors by the patron forfeiting his milk for the month of July and paying the costs. Another patron of the same factory, whose milk tested 2·30 per cent, acknowledged he had taken some cream off for his tea and porridge, and was let go on suspended sentence by the directors.

Meetings.

I gave an address on the production and care of milk at twelve different factories. The attendance was good at most places where it was known the meeting was to be public. At Newry a great deal of interest was manifested. Nearly all the patrons must have visited the factory during the two days I was there, as well as the cheese-makers from Atwood, Brussels, Donegal, Ethel and Silver Corners. Other representative men were present. All were most hospitably entertained by Mr. Morrison, the proprietor of the factory.

At Bluevale the patrons turned out in large numbers, all determined to learn what was to be learned, and to do all in their power to keep the reputation of their factory where it is, second to none in the land. The interest here was such that the patrons were not only willing to have their milk tested, but wanted the inspector tested as well. One of the directors brought three samples of milk, which he had “fixed” at home, and asked me to test them. When I had pronounced on them, he acknowledged the correctness of the tests, and expressed himself as being well pleased. A great deal of the success of this factory may be attributed to the shrewd salesman, Mr. William Messer, and the able secretary, Mr. John Burgess, who makes his accounts so clear that every patron understands exactly what he is doing, and the buyers know when they buy the cheese that it will be carefully weighed, boxed, every box put on the invoice, and the value correctly figured out, which is a great satisfaction and convenience to all concerned.

At Harriston and Cotswold, Mr. John Prain took a lively interest and worked up quite a lot of enthusiasm, and a goodly number of patrons and others turned out.

At Kenilworth and Attercliffe Station the cheese-makers did not get notice in time to notify their patrons, so there were very few in attendance. At nearly all the other places the attendance was good.

Fifteen of the factories visited were thoroughly clean, seven very dirty and the remainder passable. I cannot do better than give some of the notes entered in my book at the time of visiting the factories.

- 1st. Cheese good; everything clean and tidy.
- 2nd. Cheese fancy; everything in good shape.
- 3rd. Everything neat and clean, but the cheese showed too much acid and over-cooking.
- 4th. Cheese fair; the maker understands cheese making, but is not thorough.
- 5th. Tested all milk and found it O.K. Cheese good.
- 6th. Everything neat and clean, but cheese not fine. Maker just started in section.
- 7th. Everything clean and neat, but cheese showed too much acid.
- 8th. The maker did not know how to make cheese.
- 9th. Factory anything but clean; maker knew how to make cheese but was altogether too careless. Water very bad.
- 10th. Everything in good shape; cheese very neatly finished, but showed too much acid.

11th. Cheese showed lack of attention, and the factory was not clean. The maker could make fancy cheese if he would be thorough.

12th. Company needs everything new—factory, whey tanks, milk cans and cheese-maker.

I find at factories where the makers are careless and untidy the patrons are very apt to follow suit, and not be as particular about their cans and milk as they should be. I would impress thorough cleanliness on the makers and patrons, as one great requisite in cheese and butter making.

Surroundings and Whey Tanks.

Where the factory surroundings and cheese were not what they should be, I generally told the manager and proposed a remedy. The hardest matter of all was to get the whey tanks cleaned. In many cases they were so dirty and had been neglected so long that the makers did not much like the idea of trying to make them clean. I carried water and helped to scrub one that had not been cleaned for seven years. One can easily imagine it was no agreeable task. In another place, where the cheese on the shelves were badly finished on account of the press hoops not being clean, I scraped the hoops with a knife, and the maker, when asked how long since they had been cleaned, replied quite unconcernedly, "Fifteen years."

If the makers would burn their old boots, old vats, curd sinks and presses that have passed their day of usefulness, instead of putting them out in the yards, where they make a splendid harbour for weeds, burrs, &c., the factory surroundings would be greatly improved and they might then ask with a good conscience to have the buildings painted. The directors would be much more apt to do it if they saw an effort was being made to have the place neat and tidy.

Locations, Buildings, &c.

The majority of the factories visited were well located, being built on rising ground where water was easily obtained and admitting of free ventilation and good drainage. The buildings were generally good and in good repair, but very few of them were painted, which I think is a mistake. Very little thought seems to have been given to convenience and saving of labour in the planning of most factories..

Patrons and Care of Milk.

The patrons are taking a livelier interest in dairying on the whole and the larger quantity of the milk is generally sent in good condition. There are a few, however, in every section who are very careless as to the state of their milk when it reaches the factory. Quite a number of patrons get a great deal of very offensive matter in their milk by putting the pails on the ground while milking, and allowing what sticks to the bottom to drop inside the can when emptying the milk.

Defects in Cheese.

The principal defects in the cheese were too much acid, dryness, ragged holes and lack of finish. I took charge of a vat at nearly every factory visited, and did my best to assist the maker by showing him where he might improve. I am glad to say my efforts were appreciated and suggestions were taken kindly everywhere.

Experimental Work.

I went to Mr. Geary's factory on the 27th of July and got everything in readiness for doing experimental work by the 1st of August. A number of the patrons here were quite indifferent about the quality of the milk they furnished, and I had a good deal of difficulty getting them to take proper care of it. The results of the experiments go to show:—

1st. That the quantity of rennet used has very little effect on the yield or on the keeping qualities of the cheese. It is well, however, to use sufficient rennet to

coagulate the milk fit for cutting in from 30 to 40 minutes as, unless the vat is carefully covered, the surface is very apt to get cool and cause some waste.

2nd. That $3\frac{1}{2}$ lb. of good salt to the 1,000 lb. of milk may be used after June, without getting the cheese too dry or salty, if the curd has been cut coarse, handled carefully, and has carried a good deal of moisture.

3rd. That early milling of the curd is better than late.

4th. That fairly good cheese may be made by scalding or cooking at a lower temperature than we have been doing, viz., 98° .

5th. That milk rich in butter-fat will give a much larger yield of cheese than poor milk.

6th. That it is very seldom necessary to wait till noon for the milk to ripen, in order to get through with the work in daylight. I may add also, that according to my observations, if the air is dry the curd will be firmer, all other conditions being equal, at 94° , than it will at 98° if there is a lot of moisture in the air, and that the cooking of the curd should vary accordingly.

Butter-making at Mount Elgin.

We got the old cheese factory fitted up for butter-making and began operations on the 5th of December. There were 125,950 lb. of milk delivered from then to the end of the month, which yielded 5,335 lb. of butter-fat according to the Babcock test, and 5,891 lb. of merchantable butter, being an average of 21.38 lb. of milk to the lb. of butter.

We got more milk at first than we were able to handle to good advantage, and there were two days when we did not do good work with the separator.

The milk delivered in January was 49,495 lb. which yielded 2,141 lb. of butter-fat and made 2,390 lb. of marketable butter, taking an average of 20.70 lb. of milk to the lb. of butter.

It was generally understood with the patrons that we would pay for the milk according to the butter-fat, and if they wanted any cream they were at perfect liberty to take it off the milk before bringing it to the factory. The patrons are all well pleased with the results so far, many of them saying that the skimmed milk has been of sufficient profit to them, when fed to hogs, to pay for the extra feed the cows required, and the cows are in better condition than they would be if put dry and fed more sparingly. Very few of the patrons were in any way prepared for winter dairying, and we have not received milk from a single fresh calved cow. It has been the custom here to send the milk to the cheese factory till the beginning of December, then make butter for home use, and get the cows dry about 1st January. They are then fed on straw for about three months, or until it is necessary to begin better feeding to prepare them for the summer.

Dairying is the principal source of income with the farmers of this section, a great many of whom keep from 30 to 50 cows. Mr. Prouse, one of our all winter patrons and who has a cheese factory of his own three miles from here, has built a silo and provided himself with 400 tons of corn ensilage. He is wintering 70 cows. Very few calves are raised, the farmers preferring to kill them as they come and feed the milk to pigs till fit to be made into cheese.

General Recommendations.

I would recommend all cheese-makers to,—

1. Keep everything thoroughly clean;
2. Keep their curd knives sharp and in good repair;
3. Use a curd mill that will cut the curd and leave the pieces of a uniform size;
4. Keep whey tanks clean so as to get the full value of the whey as feed, and keep the acid from eating the tin off the cans;
5. Keep the boilers and engines clean and in a good state of repair. There is a great deal of money wasted in fuel on account of these things being neglected;
6. Burn all old rubbish and not allow it to collect in the factory yard;

7. Take pride in keeping the surroundings neat and tidy ;

8. Show at all the leading dairy shows ;

9. Interview all patrons who do not send first-class milk; reason with and explain to them the necessity and advantage of having all the milk of the best quality. Expect to be snubbed once in a while and take it in good part, for plenty of people will know more about milk than the cheese-maker; remember it is necessary to do a certain amount of missionary work.

I would urge upon all promoters of factories the desirability of selecting a suitable location in which to build, and of equipping the factory with good plant and utensils placed in the most convenient positions. A great deal of inconvenience and unnecessary labour to the makers are caused by factories being badly planned. In most factories the boilers are too near the ground, and an ordinary sized man has to go on his knees when making a fire under them.

The factories should be painted.

I have had reports from nearly all the factories visited as to the better yield obtained from following my instructions. Two factories that were making twenty-two 66 lb. cheese per day, making a full cheese more out of the same quantity of milk and of a better quality than had been made previous to my visit. In nearly every case where the visits were made by request, the makers were able to get through much earlier in the day, which was a great saving of wood and labour. I think the day is not far distant when one lb. of good cheese will be made from 10 lbs. of milk.

I have the honour to be,

Your obedient servant,

THOMAS J. DILLON.

(2) REPORT OF J. A. RUDDICK.

To Prof. Jas. W. ROBERTSON,
Dominion Dairy Commissioner,
Ottawa.

SIR,—I have the honour to submit a report of work done during the year 1891.

As my engagement dates from 6th April, this report deals only with work done since that date.

Preliminary work.

During the first month after I commenced my duties, I was employed at the Central Experimental Farm, Ottawa, testing milk in connection with the feeding experiments, which were being carried on at the time, and assisting to put the dairy building in working order.

On 5th May, acting under your instructions, I proceeded to Brownsville, Ont., where I met Messrs. John Robertson, T. J. Dillon, Jas. B. McEwen and C. C. MacDonald, all of the Dairy Commissioner's staff. We spent several days together in the cheese factory of the Brownsville Co., which is situated in the village, making some experiments with different rates of salt in the early cheese, and using the Babcock milk tester. The cheese made were afterwards sent to Ottawa to be kept in the dairy building at the Experimental Farm.

While at Brownsville, I visited along with different members of the party, the following cheese factories:—Campbelltown, Bayham, Culloden, Verschoyle, Wilkinson's, Dereham, and Maple Leaf.

Meetings.

After leaving Brownsville, I went to Eastern Ontario where I visited cheese factories and held a series of meetings arranged for by the Dairy Commissioner.

These meetings created considerable interest, both among cheese-makers and patrons of factories. During the early part of the trip when the weather was cool and the supply of milk small, the makers in the neighbouring factories were able to

close up for the day, and in this way as many as ten makers came to meet me at some of the places, but later on when the flow of milk was at its highest, and the weather excessively hot this could not be done. Generally speaking these factories are small, and at that time of the year, it is very seldom that there is more than one man in them capable of taking charge.

The matter of calling a meeting of patrons was left in the hands of the factory people, some of whom failed to make the necessary arrangements. As a consequence of this failure on the part of factory men, the total attendance was not as large as it would otherwise have been.

Attendance.

During the whole trip I met 69 cheese-makers, 4 inspectors, 8 cheese buyers, 23 factory managers, and about 500 patrons.

At these meetings the course adopted was to take as many samples of milk as was practicable for the Babcock test, to be tested in the presence of all assembled, while the process was explained as fully as possible.

I also took a hand in the cheese-making, and always suggested to cheese-makers and managers such improvements or changes as I considered necessary in or about the factory, or in the method of handling the milk. Where a meeting of the patrons had been called, I addressed them on the "care of milk for cheese-making," &c.

After finishing this work, I spent one week visiting factories in the counties of Stormont and Glengarry, for the purpose of giving instructions in cheese-making and milk-testing.

Improvement in Buildings.

Among other improvements, none is more marked than the improvement I found in cheese factory buildings, especially in the Brockville district. Among those which I visited, James Bissell & Sons', Algonquin, P. W. Strong's, Delta, and John Dickey's, North Williamsburg, are deserving of special mention. The first two named were new in 1891.

Quality of Cheese.

On the whole the quality of the cheese during the past season was superior to what it has been in previous years. (I am speaking of the section which I visited.) Part of this improvement in quality may be attributed to a favourable season; but it is very evident on all sides that the cheese-maker is year by year becoming better acquainted with the principles which underlie his work.

While the foregoing is true in a general way, I find a great deal of cheese that is far from being of the finest quality. The most common fault I met with, was an unclean flavour and weak body, especially in the early cheese. I shall speak of some of the causes under another head.

Care and Cleaning of Utensils.

Vats, vat-covers, sinks, sink-cloths, strainers, dippers, pails, &c., should all be thoroughly washed and scalded every day; but they are not always so treated. In fact there would seem to be a great many men who do not know what a benefit it is to be derived from a generous use of *scalding hot* water. Water which is not too hot to bear one's hand in comfortably, is of no use for scalding purposes; and yet this is what I find many using. The water should be as hot as steam will make it, and the lack of such has a good deal to do with causing bad flavoured cheese.

Thermometers.

A good reliable thermometer is an indispensable article in a cheese factory, yet it is a very common thing to find them as much as 4 or 5 degrees astray. It seems to be a mere chance to get a correct instrument among the cheap kinds that are supplied by the trade at present.

Difference in Cheese-makers.

I divide the cheese-makers into three classes.

First, we have a goodly number of men who are striving by every means in their power to turn out the best possible article they can—men who when they make a mistake are ready to acknowledge it and ever ready to learn how to avoid a repetition. Such men have no trouble to get along.

Then there is a class who seem to have reached the highest goal of their ambition if they succeed in making a cheese that will by “hook or crook” pass the inspection of the buyer. They can’t see any advantage to be gained by striving to improve all the time, and if you criticize their cheese, they will always tell you that they sell for the market prices. No doubt they do, but the point I wish to make is this, that if this cheese were all up to the grade of the best makers, the average market price would be correspondingly higher.

There is quite a wide range of quality from the very finest or “fancy” cheese down to the point where the “culling” commences.

The third class of makers are those who are so utterly lazy and shiftless that they don’t seem to care what the result of their labour is. You know them by their work and surroundings.

Mistakes in Cheese-making.

During the past season I found some cheese-makers making the mistake of over-ripening their milk before setting, thereby causing injury to the texture of the cheese and a loss in quantity on account of the curd not having time to become sufficiently firm before the whey is removed.

In the case of early spring cheese with a weak open body, I find the cause to be that of salting and putting to press too soon. A great many cheese-makers seem to think that in order to get a cheese which will cure quickly, it is necessary to treat the curd this way, while the fact is that the longer a curd is allowed to mature before salting and pressing, the sooner will the cheese made from it be ripe.

The curing process commences in the vat or sink. We check this rapid curing in proportion to the amount of salt we add, and the extent to which we lower the temperature.

Another mistake which I have noticed, is the use of too little rennet at all seasons.

The Babcock Milk Tester.

During the course of my itinerant work, during May and June, I tested 640 samples of milk by the Babcock method.

The highest per cent of fat found in any sample was 4.4.

The lowest per cent found in any sample was 2.6.

The average per cent of fat in all the samples was 3.44 per cent; 7 samples tested over 4.0 per cent; 14 samples tested lower than 3.0 per cent. There were three samples as low as 2.6 per cent. One of these samples contained about 15 per cent of water as indicated by the lactometer, and the other two were undoubtedly partially skimmed having a very high specific gravity.

Experimental Cheese-making.

On 8th July, I went to Perth to take up some experimental work in cheese-making, along the lines laid down by the Dairy Commissioner.

I clip the following paragraph from the Perth *Expositor* :—

EXPERIMENTS IN CHEESE-MAKING.

The “Riverside” cheese factory, owned by Mr. C. A. Matheson, and situated in this place, has been selected by Prof. Robertson, Dominion Dairy Commissioner, as

a suitable place to carry on experimental work in cheese-making for a few months. As a result of this selection Mr. J. A. Ruddick, one of the superintendents of experimental dairy work on Prof. Robertson's staff, arrived in town last week to take charge of the work, bringing with him all the necessary apparatus to conduct the work successfully. One of the leading experiments and one of especial interest to patrons of factories, will be to determine the quantity and quality of cheese made from milk containing different percentages of fat. The Babcock tester will be used for ascertaining the quality of the milk as regards butter-fat. Many other experiments will also be undertaken in order to furnish cheese-makers and all interested with positive information on some points which at present admit of more or less argument and difference of opinion. About 5,000 pounds of milk will be used daily during the progress of the investigation. The "Riverside" factory is well adapted for this kind of work. The drainage is good, the water supply excellent and the building roomy, well ventilated, and so constructed that the temperature can be controlled at almost any point. Mr. Ruddick invites all cheese-makers and everybody interested to visit the factory, when he will be glad to give any information in his power relative to the work on hand. The Dominion Government are carrying on these experiments in two factories, one east and the other west of Toronto. The Perth factory is the one selected east of Toronto, and cheese-makers should not lose the opportunity of attending during the experiments which will be continued for about six weeks.

The experiments carried on were as follows:—

First Series.

1. To determine the quantity and quality of cheese made from milk having different percentages of fat;
2. The effect of using different rates of salt;
3. The effect of early *vs.* late milling or grinding of the curd;
4. The effect of hooping the curd at different periods of time after salting;
5. The effect of piling *vs.* not piling of the curd.

Second Series.

6. The effect of setting the milk at different degrees of ripeness;
7. The effect of high *vs.* low cooking of the curd;
8. The effect of using different quantities of rennet;
9. The effect of stirring and not milling *vs.* matting and grinding of the curd;
10. The effect of using extract of rennet *vs.* rennet powder.

In order to carry out these experiments it was necessary to have a vat constructed with three compartments of equal size, in each of which the temperature could be maintained at any point desired.

In addition to the special vat very little apparatus was required besides what is in use in an ordinary cheese factory.

No more work was undertaken at a time than that which could be given the closest possible attention; and realizing fully that inaccurate results are misleading and calculated to do more harm than good, every possible care was taken in the carrying out of this work with a view to make the conclusions reliable, as I believe they are.

I would be ungrateful if I failed to mention the ever ready and cheerful assistance which I received from the cheese-maker in charge of the factory, Mr. James McCann, and his helpers, as well as the faithful service of my own assistant, Mr. John R. Moore. Owing to their careful and painstaking help, I was able to prosecute the work more successfully than I could otherwise have done. Mr. C. A. Matheson, the proprietor of the factory, was always willing and ready to afford me every facility in his power.

In the first series of experiments the work was carried on in an ordinary cheese vat, with the exception of No. 1, when the three compartment or special vat was used. In order to get milk for this test containing different percentages of fat, and to secure as wide a difference as possible between the richest and poorest milk, each

patron's milk was tested by the Babcock method for three consecutive days. Then by taking enough of the richest lots to fill compartment No. 1, enough of the poorest to fill compartment No. 3, while the remaining compartment received milk of about average quality, we had milk running from 4.0 per cent of fat down to 3.5 or 3.4 per cent. The greatest difference I was able to get between the milk in the different compartments was .5 of one per cent. Duplicate samples of the milk in each compartment were tested every day.

In the second series of tests, the milk was first thoroughly mixed in one large vat, then afterwards divided and weighed into the experimental vat.

In making these cheese, I followed the system generally practiced throughout eastern Ontario. The work was all done in the vat, no sinks being used.

In keeping the record a form was used, showing the following particulars:—

EXPERIMENTAL CHEESE-MAKING

At Perth Factory, 1891:—

Weather.....
Condition of Milk.....
General Notes.....

Lb. of milk,	Manner of cutting,	Milled at,
Percentage of fat,	Stirring commenced at,	Temperature of curd,
Specific gravity,	Heat applied at,	Salted at,
Degree of ripeness,	Heating ended at,	Rate of salt used,
Other quality or condition of the milk,	Temperature,	Kind of salt used,
Colouring used, quantity and kind,	Acid discernible by hot iron test at,	Temperature of curd at salting,
Kind of rennet used,	Whey removed at,	Hooped at,
Quantity of rennet used,	Percentage of fat in whey,	Temperature of curd,
Time set,	Degree of acid by hot iron test after removal of whey,	Number of cheese made,
Temperature set at,	Treatment of curd,	Weight of curd put in hoops,
Thick at,	Degree of acid on hot iron at,	Length of time in press,
Cutting commenced at,	Temperature of curd at,	Weight of cheese from press,
		Marks on cheese.

CHEESE MADE FROM MILK HAVING DIFFERENT PERCENTAGES OF FAT.

DATE.	LOT A.			LOT B.			LOT C.		
	Per cent of Fat in Milk.	Specific Gravity of Milk.	Pounds of Milk for 1 lb. of Cheese.	Per cent of Fat in Milk.	Specific Gravity of Milk.	Pounds of Milk for 1 lb. of Cheese.	Per cent of Fat in Milk.	Specific Gravity of Milk.	Pounds of Milk for 1 lb. of Cheese.
July 15.....	3.8	1031.4	10.69	3.6	1031.1	10.84	3.4	1030.6	11.56
do 20.....	3.9	1031.8	10.29	3.6	1031.5	10.71	3.4	1031.4	11.03
do 21.....	3.75	1031.5	10.57	3.50	1030.8	10.66	3.40	1030.8	11.03
do 22.....	3.8	1031.3	10.49	3.6	1030.9	11.16	3.5	1031.1	11.31
do 31.....	3.95	1031.9	10.23	3.65	1031.0	10.66	3.55	1031.2	11.00
Aug. 1.....	4.0	1031.8	10.06	3.6	1031.4	10.59	3.5	1031.3	11.06
do 6.....	4.0	1031.5	10.34	3.8	1031.4	10.82	3.5	1031.0	11.32
do 7.....	3.8	1031.3	10.40	3.6	1031.2	11.04	3.5	1030.8	11.12
do 8.....	3.8	1031.5	10.52	3.5	1031.1	11.15	3.3	1031.0	11.52
General averages..	3.86	1031.5	10.39	3.60	1031.1	10.84	3.45	1031.0	11.21

The average number of pounds of milk to 1 lb. of cheese in this test, as well as in all the others, is calculated from the weight of the cheese on 17th October.

These cheese were all made alike as nearly as possible. In order to have uniformity in the work I did all the weighings myself, including the milk as well as the cheese.

DIFFERENT RATES OF SALT.

Date.	RATE OF SALT.		
	2 lb. per 1,000 lb. of Milk.	2½ lb. per 1,000 lb.	2½ lb. per 1,000 lb.
July 28	3rd.	2nd.	1st.
do 29.....	2nd.	1st.	3rd.
	2½ lb. per 1,000.	3 lb. per 1,000.	3½ lb. per 1,000.
August 6.....	3rd.	Equal.	Equal.
do 7.....	Equal.	Equal.	1st.
do 8.....	3rd.	1st.	2nd.
do 22.....	3rd.	2nd.	1st.
do 24.....	3rd.	2nd.	1st.
do 25.....	3rd.	2nd.	1st.

The examinations of the quality were made by Professor Robertson, and the order of merit was placed as in the columns above. (*See note.*)

MILLING AT DIFFERENT STAGES.

Date.	LOT A.	LOT B.	LOT C.
	Time milled at.	Time milled at.	Time milled at.
	P.M.	P.M.	P.M.
July 27.....	3.50	4.30	5.25
August 4.....	2.00	3.00	3.45
do 19.....	2.40	4.15	5.02
do 19.....	2.00	3.40	5.00

NOTE — The cheese which were made under the different tests were judged by a scale of points upon three different occasions. The publication of the full details and conclusions is reserved until after another season's experiments have been conducted.—J. W. R.

Examined by Professor Robertson, 14th October, and ranked according to merit as follows :—

Date.	Lot A.	Lot B.	Lot C.
July 27.....	2nd	3rd	1st
August 4.....	1st	2nd	3rd
do 19.....	1st	3rd	2nd
do 19.....	1st	Equal.	Equal.

HOOPING AT DIFFERENT STAGES.

Date.	Time salted.	Lot A.	Lot B.	Lot C.
		Time of hooping.	Time of hooping.	Time of hooping.
	P.M.	P.M.	P.M.	P.M.
July 30.....	4.50	5.00	5.15	5.35
August 4.....	4.30	4.50	5.15	5.30
do 13	4.15	4.15	4.40	4.55
do 14.....	5.20	5.20	5.40	6.00
do 15.....	4.55	4.58	5.15	5.35
do 21.....	3.45	3.50	4.10	5.00

Examined 17th October by Professor Robertson, and rated as follows :—

Date.	Lot A.	Lot B.	Lot C.
July 30	Equal.	Equal.	Equal.
August 4.....	1st.	do	do
do 13.....	1st.	do	do
do 14.....	3rd.	do	do
do 15.....	1st.	2nd.	3rd.
do 21.....	1st.	Equal.	Equal.

THE EFFECT OF PILING VS. NOT PILING THE CURD.

Date.	Lot A, matted and piled high.	Lot B, matted and piled 4 or 5 high.	Lot C, not piled.
July 17 ..	Equal	3rd	Equal.
do 18	1st	3rd	2nd.
do 23	1st	Equal	Equal.
do 24	Equal	3rd	do

In this test lot A was piled as high as possible and turned quite frequently—every fifteen or twenty minutes. The original pieces of curd were about 6 inches square and 1 foot long, but on account of the high piling became flattened out to 1 inch or so in thickness. Lot B not being piled so high, the pieces retained more of their original shape. Lot C was not piled, but merely turned over and kept spread out, therefore it did not become “flaky” like the other lots. The temperature was maintained evenly in the different lots.

DIFFERENT DEGREES OF RIPENESS FOR SETTING.

Date.	LOT A.					LOT B.					LOT C.				
	Time set at.	Time cut at.	Whey removed at.	Per cent of fat in whey.	Lb. of milk for 1 lb. of cheese.	Time set at.	Time cut at.	Whey removed at.	Per cent of fat in whey.	Lb. of milk for 1 lb. of cheese.	Time set at.	Time cut at.	Whey removed at.	Per cent of fat in whey.	Lb. of milk for 1 lb. of cheese.
Aug. 19..	8·31	9·40	12·00	·20	11·02	9·46	10·36	12·00	·20	11·02	10·33	11·04	12·00	·20	11·15
do 20..	8·26	9·28	12·20	·19	10·59	9·35	10·20	12·10	·20	10·61	10·53	11·20	12·10	·22	10·64
do 26..	8·34	9·29	12·40	·15	10·22	10·01	10·42	12·40	·19	10·34	11·30	11·52	12·40	·20	10·20
General averages...	.....	.....	.....	·180	10·27	.....	.....	.....	·196	10·32	.....	.....	.....	·206	10·66

The cheese were examined on 14th October, by Professor Robertson, and graded as follows:—

Date.	Lot A.	Lot B.	Lot C.
August 19	Equal.	Equal.	Equal.
do 20	do	do	First.
do 26	do	do	Equal.

In the above experiment the percentage of fat in the whey was arrived at by the Babcock test. I did not presume to read the test as closely as the results are given, but in my judgment there was an appreciable difference in the quantity of fat. In making the test I always took duplicate samples, and after the whirling was completed I poured the fat from one bottle into the other and gave it another short whirl ; having doubled the quantity, it was much easier to read.

THE EFFECT OF DIFFERENT COOKING TEMPERATURES.

—	Lot A.	Lot B.	Lot C.
Cooking temperature.....	101°	98°	95°
August 10.....	3rd.	Equal.	Equal.
do 11.....	Equal.	do	do
.....	2nd.	3rd.	1st.

POUNDS OF MILK REQUIRED TO MAKE ONE POUND OF CHEESE.

August 10.....	10·90	10·75	10·73
do 11.....	10·95	10·90	11·04
do 12.....	11·13	10·99	10·97
General averages.....	10·99	10·88	10·91

Examined by Professor Robertson, 14th October.

DIFFERENT QUANTITIES OF RENNET.

Examined 14th October, by Professor Robertson, and graded as follows:—

Date.	Lot A.	Lot B.	Lot C.
	3 oz. of Rennet per 1,000 lb. of Milk.	6 oz. of Rennet per 1,000 lb. of Milk.	9 oz. of Rennet per 1,000 lb. of Milk.
July 28	1st.	Equal.	Equal.
do 29.....	2nd.	1st.	3rd.
August 22.....	Equal.	Equal.	3rd.
do 24.....	do	do	Equal.
do 25.....	1st.	2nd.	3rd.

POUNDS OF MILK REQUIRED TO MAKE ONE POUND OF CHEESE.

	Lot A.	Lot B.	Lot C.
July 28.....	10·82	10·79	10·82
do 29.....	10·80	10·78	10·88
August 22.....	10·91	11·08	10·98
do 24.....	10·37	10·43	10·48
do 25.....	10·44	10·30	10·28
General averages.....	10·66	10·67	10·68

THE EFFECT OF MATTING AND PILING OF THE CURD *vs.* STIRRING.

Date.	Lot A.	Lot B.	Lot C.
	Matted, packed, piled.	Matted, packed, not piled.	Stirred, not milled.
August 3.....	Equal.	Equal.	3rd
do 4.....	do	do	3rd

POUNDS OF MILK REQUIRED TO MAKE ONE POUND OF CHEESE.

August 3.....	10·69	10·75	11·13
do 3.....	10·75	10·82	11·29
General averages.....	10·72	10·78	11·21

The procedure in this test was the same as in No. V, with the exception that Lot C was not allowed to mat at all but was stirred until quite dry, and the tendency to mat gone. The particles of curd were as fine as peas or beans. All the lots were treated alike in every other respect.

LIQUID *vs.* POWDER RENNET.

For this test the milk was all first mixed in one vat and afterwards divided equally into two compartments.

Date.	—	Lot A.	Lot B.
July 30.....	Per cent of fat in milk.....	3·5	3·5
	Specific gravity	1030·7	1030·7
	Kind of rennet used.....	Powder.	Hansen's extract.
	Quantity of rennet	1½ measures per 1000	2¾ ozs. per 1000.
	Set at.....	9·17	9·17
	Whey removed at.....	12·00	12·00
	Per cent of fat in whey.....	·22	·20
	Average pounds milk for one pound cheese ..	11·11	11·07
	Standing as to quality, 14th October.....	Equal.	Equal.
August 5.....	Per cent of fat in milk.....	3·8	3·8
	Specific gravity.....	1031·5	1031·5
	Kind of rennet used.....	Powder.	Hansen's extract.
	Quantity of rennet....	2 measures per 1000	3 ozs. per 1000.
	Set at.....	9·10	9·10
	Whey removed at.....	11·45	11·45
	Per cent of fat in whey.....	·20	·17
	Average pounds of milk for one pound cheese	10·80	10·73
	Standing as to quality, 14th October	2nd.	1st.

Working Dairy at the Exhibitions.

On the completion of this experimental work, I received instructions to go to Sherbrooke and assist in operating a working dairy under the supervision of the Dairy Commissioner, and in connection with the Exhibition of the Eastern Townships Agricultural Society and Dominion Dairy Show. Accordingly, on 27th August I went there in company with yourself, Messrs. J. W. Hart and C. C. MacDonald, to commence operations by getting the building and machinery in shape. We were furnished with a complete outfit for making butter and cheese and also testing milk. We made cheese on three days of the fair and butter on four days.

Judging from the crowds that were constantly in the building, the "Working Dairy" was one of the leading features of the fair. Many were the questions asked and answered, and information on butter and cheese-making, as well as testing milk, was disseminated.

The people seemed to be so deeply interested that it was a pleasure to answer questions and talk with them on dairy matters.

His Excellency the Governor General honoured the Working Dairy with his presence during his visit to the exhibition, and was shown through it. He took a deep interest in all the details as explained to him by the Commissioner.

The "Victoria" Hand Power Cream Separator which we used in the Dairy was a great attraction in its working, inasmuch as a large majority of the people had never seen anything of the kind before. The Babcock Milk Tester also came in for a large share of attention.

From Sherbrooke the outfit was sent to Montreal and set up in the dairy building on the Exhibition grounds in that city; and the Dairy was "working" for one week during the Montreal Exposition. On the big days of the fair the crowd in the dairy building was so great that it was almost impossible to get through it at times.

As at Sherbrooke, His Excellency the Governor General paid us a visit.

Work in the Eastern Townships.

After finishing up the work in connection with the exhibitions, I received instructions to go to Dunham, Que., and carry on some experiments in the cheese factory there, similar to those which I conducted at Perth. I was taken sick, however, after getting everything ready and left the work in the hands of Mr. C. C. MacDonald.

A winter creamery—on the cream-gathering plan.

I next received instructions to go to Woodstock, Ont., and take charge of an experimental creamery there for the winter.

Arrangements had been made by the Dairy Commissioner, with the directors of the East and West Oxford Cheese Co., to carry on the work at their factory.

After putting on double windows and storm doors, and boarding up with matched lumber the space between the sills of the building and the ground, the place was quite warm enough for the coldest weather. The cheese vats were set to one side and a platform 10 x 14 ft. x 2 ft. 6 in. high was put up to carry the cream vats, giving them elevation enough to allow the cream to be drawn off directly into the churn. Besides the cream vat and the churn, the necessary machinery comprised, refrigerator cans for gathering cream, drivers' measuring pails, one No. 2 Curtis oil-test churn, and 1 Mason's power butter-worker.

Plan of operation.

The patrons are instructed to set the milk in deep-setting cans in ice-cold water. The skimming is done by the patrons, and when the driver comes along he pours the cream into his measuring pail,—which is exactly 12 inches in diameter—takes a note of the number of inches in depth of cream, and also takes a sample of the cream for the oil-test churn. The cream is then poured into the refrigerator can, where it has not been frozen in the coldest weather during a round taking 6 or 7 hours to complete.

Arrived at the creamery, the cream and the samples thereof are delivered to the butter-maker, who at once strains the cream into the vat through a cheese cloth strainer, and brings the temperature to the proper point to ripen the cream. That varies according to the condition of the cream as to its sweetness when received. The samples are put in a warm place and churned after about 18 hours; and the amount of butter as shown by the oil-test churn is placed to the credit of each patron.

The farmers of the neighbourhood were hardly prepared for winter dairying, but being live farmers and awake to their own interests, they determined to make the best of the opportunity. It was not expected at the outset that the creamery could be kept running much past the time of this writing, for the patrons, thinking of their usual practice informed me that the supply of cream would be exhausted by this time. It was expected, therefore, that a stop would have to be made for at least a month or six weeks, starting up again in February or March. The fact is, however, that patrons have been so well pleased with the results so far, that they have fed their cows much better than usual, and given their dairies better attention all

around, with the result that the supply of cream is nearly as much now as it has been at any time since we started, while we have a sure prospect of having enough to continue on all winter.

The creamery has been visited by a large number of people of all classes. We frequently have farmers and their wives or daughters coming to watch the process of butter-making. Factory men who contemplate starting on the same lines in their own factories, take the chance of learning the requirements, while a number of cheese-makers have spent several weeks learning something of the art of butter-making.

I have the honour to be, Sir,

Your obedient servant,

J. A. RUDDICK.

WOODSTOCK, 31st Dec., 1891.

(3) REPORT OF C. C. MACDONALD.

To Prof. JAS. W. ROBERTSON,
Dominion Dairy Commissioner,
Ottawa.

SIR,—I beg leave to submit the following report. My appointment took place on the 1st of May, 1891; I proceeded to Brownsville, Oxford County, for the purpose of meeting the other Superintendents before starting on our missions. While there, experiments were made in making cheese and testing milk, records of which have been sent in to Ottawa. After that I proceeded to the Province of Quebec where my work was carried on mostly in the French-speaking district, giving instructions in both cheese and butter-making and giving illustrations in the use of the Babcock milk tester. I visited 60 cheese and butter factories in all. I met and talked with and gave instructions to 152 cheese-makers and 14 butter-makers. I also held myself open to correspondence with cheese-makers. I feel assured that a great deal of good can be done in this way. I had no less than 21 correspondents on my list. I arranged to have them ask their questions by numbers; numbering each question, as one, two and three, and to be as brief in their remarks as possible. When a cheese or butter-maker expressed a desire to correspond I always invited him to do so, and I am gratified to know that to a large extent the result of my correspondence was fully up to my anticipations.

Making cheese on Saturday night is being carried on all over the Province of Quebec, with the exception, I believe, of Huntingdon County, and I had the opportunity of being present at some of the factories on Saturday nights. Although I did not like the idea of encouraging Saturday night and Sunday work, I usually remained with the makers to give them instructions for handling of Saturday nights milk for cheese-making. Saturday nights cheese can always be detected by the buyers. I have learned from different sources that the makers were greatly benefited by Saturday nights visits. My method of preparing the milk for setting, was to put a man on each side of the vat with a pail dipping the milk steadily while it was coming in until the milk was cooled down to 70°, having all doors and windows open while the dipping was going on. Then the milk was heated to 90° and allowed to mature to 20° acidity by the rennet test. This of course is a long process, but I found it the only way to success with such new milk. I must add with regret that the French-speaking farmers have not heretofore made use of the aerator or any other means of airing or cooling milk; but now they are beginning to see the necessity. In some parts they are making use of them, but to a limited extent as yet. I feel assured (and I look forward with pleasure to the future) that success awaits the French-speaking farmers of Quebec. I see a difference in the ancient province, from what it was but a few years ago. I was well received by all farmers and cheese-makers. They were all anxious to hear what I had to say to them and listened most attentively at all meetings.

I had the pleasure of travelling with Mr. J. C. Chapais, Assistant Dairy Commissioner, for nine weeks. We made a very profitable tour down the Intercolonial railway as far east as Rimouski County, all along the north shore and south shore

of the Canadian Pacific Railway down to Lake St. John region and down the beautiful far-famed Saguenay River. We travelled in the neighbourhood of 4,000 miles by rail, steamboat and carriage; and upon one occasion we crossed the St. Lawrence at Champlain in an open boat. When we were within a hundred yards of our landing place, we were informed by our boatman that he would have to land us on his back; so we even travelled on a man's back.

Cheese Factories.

The cheese factories in Quebec, like Ontario, are in most cases poorly constructed and poorly equipped. I found very few factories that were suitable for making cheese in at all seasons of the year. Proper attention has not been paid to this part of the dairy interests of the province. A few factories, of course, are in good order, but most all the factories that I visited were very open in construction, and the drainage was very poor. Some had no drains running from them at all; and one can always tell that there is a cheese factory within at least a quarter of a mile in cases of no drainage. I do not lay the blame to "not knowing how," but to carelessness on the part of the factories' owners. Again, the factories are small, and there are too many factories for the number of cattle kept for dairy purposes. If factory men would only amalgamate and throw two or three small factories into one, the business could be carried on much cheaper, and to better advantage every way. I found the factories very poorly ventilated, and some were all ventilation. The proprietor's plea for not having a better building, is that he cannot afford to build a better one; a very good reason I take it that he should not build one at all, but step out and let those who can and who have more enterprise than he. I do not wish to convey the idea that all the cheese factories in the Province of Quebec are inferior, for such is not the case. I have found quite a number of first-class cheese factories in the Eastern Townships, and kept in first-class condition. I found also some good factories in the French-speaking districts. My report relates chiefly to the French-speaking districts of the province, as my work was carried on principally in those parts of the province. I would like to name those factories that were properly managed and constructed, both of the French districts and the Townships, but space will not permit, but I think the idea would be a good one and would bring those who are delinquent, face to face with the real position in which they stand in the dairy world.

I found a great many of the factories dirty and very poorly managed, and makers in charge who were labouring under the terrible mistake that anything was good enough, so long as they got the goods off their hands. In nearly every case these makers are called upon to make up out of their own pockets, the losses caused by inattention to business, and a lack of knowledge of their business. Men who are engaged because they will do the work in a cheap manner, in many cases prove to be the most expensive. Small factories, where there is least to do, are generally the poorest kept factories. Wherever I found a woman in charge of a factory, I always found it in perfect condition. I had intended giving a special report of the factories where ladies were managers; but it would take too much space. We cannot have ladies in all our cheese factories, but we can have men who can and will exercise woman's pride in regard to cleanliness, and then the cheese industry will glide along more smoothly.

Cheese-making Furnishings.

I regret to have to state that I found a large number of cheese-makers using inferior materials for the making of cheese. Some bought them because they were cheap, while others bought them, thinking the goods were first-class. I have been in factories where 8 oz. of rennet extract were used per 1,000 lb. milk to coagulate it in proper time for cutting; and that rennet had none of the best of flavours. I make mention of these facts to show what has been and is going on, hoping that matters will be remedied. I found in most factories boxes of very inferior quality.

A cheese box that contains less than 45 nails is not fit to put on a cheese. It is weak and will assuredly go to pieces before the package reaches the retailer's hands. If cheese-makers would pay the small sum of two cents extra for their boxes, they would get a much more desirable box, the cheese would have a much more desirable appearance when it reached Montreal or other markets, and they would realize, I am sure, at least a quarter of a cent per pound for first-class cheese, more than they would if the box were broken. I visited some of the warehouses one day while in Montreal, for the purpose of ascertaining the condition of the cheese on its arrival at the store-rooms, and I saw in shipments of a hundred or two hundred cheese, about one-fifth of the boxes broken or coming apart. An extra outlay of a cent or two per box would remedy all that trouble.

Cheese-making.

I was very much pleased to note the improvement in the quality of cheese over almost all the province, as compared with that of 1890. I take this from reports from the different buyers and what I had the opportunity of seeing myself. But although there is a decided improvement, there is still great room for further improvement. There are numerous fields for good instructors all over the country. The instructors in some cases in the province have done a good work. Mr. Robert Wherry's work is especially worthy of mention. By his unwearied attention and the exercise of skill in his duty, he has succeeded in raising the standard of cheese in his section. Consequently the prices are equal to those of Ontario. The dairy work is only in its infancy, but the people of Quebec are becoming alive to the fact that there is work for them to do, and they are going to do it. I attended forty-four meetings, where I took part in addressing the farmers and cheese-makers. I was gratified to know that the farmers looked upon our meetings with apparent great pleasure, and the meetings were largely attended by cheese-makers, butter-makers, farmers and townsmen, with the exception of a few meetings that we held in the latter part of July. Haying and harvest were fast coming on; it was impossible to get the farmers out, and it was thought best to discontinue holding meetings while they were so busy making hay.

Marketing Cheese.

I would like to say a few words upon the matter of putting cheese on the market. Cheese in Quebec, especially that of the French-speaking districts, has been for the past two years sold and shipped far too green. I know of cheese during the past season of which the make of the first ten days of August was bought on the 15th of August and shipped to Montreal. This is one great reason why Quebec cheese has not ranked in quality with that of sister provinces. I think that both salesmen and buyers are at fault for this, but I am inclined to lay more blame upon the shoulders of the buyer than upon the salesmen. Every farmer should know that a cheese cannot be fit for shipment under fifteen days old, and the cheese-maker for the sake of his own reputation should strongly object to having his cheese removed from under his care until the cheese are properly cured. Competition is so keen in some of the districts that all buyers are so hungry, so to speak, for cheese that they take them almost up to the cheese press.

Butter Factories.

The butter factories that I visited are better constructed than the cheese factories; but some of them were not kept as clean and tidy as they might have been. However, I was much pleased to visit one butter factory at Isle Verte, owned and managed by Messrs. Préfontaine Bros. I consider it a first-class butter factory both in its construction and in its management. Everything in and about the factory was kept in perfect order, pure, sweet and clean.

I had the satisfaction of testing the butter and found it of splendid quality.

The power used for running the machinery in this factory is water power. The water used for washing of butter and dairy utensils is taken from a distance of 1,800 feet from the factory. The temperature as it comes into the factory is about 54°. A steam boiler is used for the purpose of heating water for cleaning purposes. All the churns, refrigerator, cream ripening vats, butter workers, &c., are manufactured by Messrs. Préfontaine Bros. themselves, and are very neat in their construction. I could see nothing lacking in this factory to make butter-making a thoroughly successful business. I would like to see all who are interested in dairying take the same pride in the management of their cheese and butter factories as Messrs. Préfontaine Bros. do; then there would be no room for fault-finding in any case.

The Milch Cows.

I noted with great pleasure the excellence of the dairy cows in almost every district in the province. In all parts of the French-speaking districts I found the milk very rich in butter-fat. I took 1,226 samples of milk which ranged all the way from 3½ per cent to 8 per cent of butter-fat. I found a number of samples that had been tampered with, and in every case so far as I have learned the transgressors have paid the penalty according to the magnitude of their sins. In mostly all the herds in northern Quebec may be seen a number of the Black Jersey, better known as the French Canadian cow; they are quite as ornamental as useful to any herd. In all the individual tests that I made of this class of milch cows, I found the quality very rich in butter-fat. At St. Norbert I had the pleasure of seeing one of the finest specimens of the Canadian cow that I ever saw. So much did this little beauty appear and take my fancy, that I went twice in one day to visit her. I took a sample of her milk and under very unfavourable circumstances it tested 5 per cent butter-fat. The cream came to the surface so quickly before I could get at the test, that quite a stiff cream had gathered, and became quite tough, so I did not get a fair sample.

At St. Jérôme, in the Lake St. John region, another sample of milk was brought in for a test; it contained 8 per cent butter-fat. I expressed a desire to see the cow that gave that milk, and was directed to where she was feeding. I saw her milked that evening at 6 o'clock, the milk was weighed and tipped the beam at fifteen pounds; this was on the 27th day of July. I was informed that the little cow had milked as high as twenty-five pounds at one milking. She is red in colour, very dark coloured hair around the eyes, very strongly built, weighing about 650 pounds, and five years old. This cow was for sale at \$25. I also found a very valuable herd owned by Mr. J. C. Chapais, of St. Denis. The average per cent of fat for the herd was 4 per cent.

All through the Lake St. John district I found the average per cent of butter, taking the average of five factories, 4 per cent. I regret to say that I learned that these valuable little animals giving this milk are not properly cared for during the winter months. I was informed that these cows were fed on straw and refuse from the horse stables. It is wonderful how these little animals thrive and give the amount of rich milk that they do. The climate of northern Quebec is very cold in the winter months, and the cattle are but poorly fed, poorly housed and poorly cared for generally. If the farmers of Quebec would turn their attention more thoroughly to dairy farming and begin right where they are, with the breed of cattle they now have, and their natural facilities, they would in a remarkably short time attain great success in the dairy business. The Canadian cow is a much more desirable cow, to my mind, for dairy purposes in that cold climate, than the Ontario Jersey would be. They are hardier and better adapted in every way. They are accustomed to "rustling" for their living. Where the Canadian cow is crossed with the Ayrshire breed, they are a very valuable animal for cheese-making. The milk of some of the crossed breeds averaged 3·8 p. c. fat and they give large quantities of milk. I made special tests of herds as I went through my programme, in order to get an idea of the different breeds of cattle, and so far as my investigations were extended, I invariably

found the crossed breeds of Canadian and Ayrshire to be the most desirable. There is certainly a great future for dairying in a great many parts of the Province of Quebec. Dairying, it is true, is only in its infancy in some parts of the province, but new factories are being started where two years ago there were none, and both cheese-makers and farmers are anxious to gain knowledge of the business.

Lake St. John.

I must say a few words in commendation of Lake St. John. Like the Eastern Townships, there are no greater facilities for dairy farming in the Dominion. The grasses of Lake St. John grow very abundant and nutritious, and the water supply is excellent from pure running streams and lakes. I took special notes of the crops in the different parts of the country as I passed through and the very best crops I saw of all kinds were in the Lake St. John district; those of the Saguenay region were also notable. I saw wheat and oats standing fully five feet high; and very strong wheat, oats, pease, barley, flax, corn and hay are grown very extensively there. I think wheat, pease and hay are the only crops that are grown with very great success, as the seasons are very short in that northern clime, and many of the slow maturing grains are apt to be caught by the early frosts.

I saw some excellent crops of corn growing, but I fear that the seasons are too short for making corn growing a success, except for feeding purposes. Early maturing ensilage corn would be an excellent crop. As yet Lake St. John and the Saguenay districts have very limited railway accommodation, but next year the Quebec and Lake St. John Railway will be extended as far as Chicoutimi, that is the only line of railway running through the northern part of Quebec, so one can plainly see that the inhabitants of that district have had very little chance or encouragement for improvement owing to the absence of transportation facilities. If fifty head of cattle can be kept on any one hundred acres of land in this Dominion, and I believe it is possible to do so, it can be done in the Lake St. John and the Saguenay districts. Mr. Chapais and I drove from Lake St. John to Chicoutimi, a distance of seventy-six miles, so we had a splendid opportunity of seeing the beauty of the country, and it is truly a magnificent country. The roads are very primitive as yet and very mountainous. Small horses are used for traffic, some not weighing more than from eight to nine hundred pounds. It is truly wonderful how they perform their work. In going down the mountain they run at full speed down, in order to get a send-off going up the other side. It is the driver's business to keep the horse in the road, and the passenger's business,—and he has his hands full too,—to hang on like grim death. I never knew one of those horses to make a stumble. It seems as though they were bred for those roads and hills.

There are magnificent forests along the line of the Quebec and Lake St. John Railway between Quebec and Roberval, and the scenery is most weird and beautiful with lakes, rivers, falls, villages and mountains. The road is 196 miles long, and it seemed to me that there was not a straight five miles in all that distance. The thrifty growth of the forest trees showed that there was rich soil there awaiting cultivation. We remained at Chicoutimi two days and occupied the time by giving lectures, testing milk and giving lessons in cheese-making; then a trip down the beautiful far-famed Saguenay. The trip was quite a recreation after our long journey across country. The scenery along the Saguenay is simply indescribable; one cannot have the faintest idea of it from reading. We made a stop at Murray Bay and Bay St. Paul, where we delivered the last of the series of lectures and instructions of our nine weeks tour. At this time of year, the latter part of July, it was impossible to get the farmers to attend meetings as they were into hay-making and harvest.

A word for the French-speaking farmers and cheese-makers is due them from me. I noted with pleasure and no small degree of satisfaction the attention we received at all our meetings. Both farmers and cheese-makers seemed anxious to learn and improve. We held but two meetings in English. I look for great improve-

ments within the next few years in the French-speaking districts in dairy farming, and Ontario must keep her eye open in order to keep the lead in butter and cheese.

After leaving Mr. Chapais at Quebec I proceeded to go over some of the ground during the month of August, that I had previously covered, and visited factories where instructions were most needed. I was exceedingly pleased to note some improvements that had been made since my previous visit.

I found a great many cheese-makers making by what they termed a time system, which is impracticable and misleading to the average cheese-maker. If every cheese-maker were capable of ascertaining the exact condition of the milk he receives every morning and then governing himself accordingly, the time system would not prove so disastrous to the quality; but a great many cheese-makers get on the weigh stand and let all the milk pass through their hands and scarcely know, when they have received it, what the condition of their raw material is.

A very important feature in cheese-making is the ripening of the milk before setting. I was very much surprised to find so few cases where the practice of ripening was carried on and in most cases it was totally unknown.

The most practical test that could be demonstrated to ascertain the degrees of ripeness of milk was the measure or cup-test with rennet.

Rennet Test.

The rennet test (or, as it is commonly called, the cup test) is the most practical test for the average cheese-maker. It is used to ascertain the degrees of acidity of the milk or its ripeness for cheese-making. The test may be described as follows:—After the vat of milk has been heated to the desired temperature, take 8 oz. of milk from the vat (a teacup is the best vessel to manipulate the test in), add 1 drachm of rennet extract of known strength. Just before adding the rennet, take a watch in the left hand, and the teaspoon holding the extract of rennet in the right hand. When the second hand of the watch touches at some figure, drop the rennet into the milk in the cup and give the milk a sharp stirring for about 10 seconds to mix the rennet thoroughly with the milk. If the milk thickens in the cup in 25 seconds, it is not ripe enough for setting, and should be allowed to mature longer. From 20 seconds down to 15 seconds by the test, indicate the condition of milk most desirable for adding the rennet to the vat. The most accurate way of telling when the milk in the cup has been coagulated, is to put a small piece of burnt match or any small black speck in the cup before the rennet is added. By stirring the black speck is put in motion, and when this stops moving it is a sure sign that the milk is coagulated. After the operator has practised the test a few times, he will be able to manipulate it with accuracy.

I took particular care to have all the makers practice the test so that they could catch the first sign of coagulation to the second hand on the watch. It is just as important that a cheese-maker should have his raw material in proper condition for operating upon, as it is for the housewife to have her batch of bread in proper condition for baking. I would no more put rennet in a vat of milk before I had ascertained the degrees of acidity in the milk, than I would mill the curd when the hands of the clock had reached some given hour.

A cheese-maker should be capable of exercising his own judgment in the process of cheese-making, and if he is not capable of doing so, his place is on the outside of the cheese factory; or, as a certain dairyman puts it, it would be better for him to "study law."

During the latter part of August I was billed in my programme to visit St. Gabriel de Brandon for three days, but it was impossible for me to get away from that district in a shorter time than a week. I visited three factories in the parish and gave them two days in each factory, and every day my meetings were as largely attended as possible, some makers closing their factories for the day. I was requested to remain longer, but had to decline as my programme called me to the Sherbrooke Exhibition, where I assisted in a series of milk tests of the different herds of cattle that were in the competitions of the special milking test.

After finishing at Sherbrooke, I proceeded to the town of Dunham, in Missisquoi County, to superintend a series of cheese-making experiments during the month of September and part of October. I made 273 boxes of cheese. Besides these, 24 boxes of experimental cheese were shipped to Ottawa. The records of the experimental cheese were sent to the Dairy Commissioner's office, Ottawa. The milk used for making this experimental cheese was selected according to the per cent of fat in the milk. It was intended to select three grades of milk, but it was found impossible to get a low grade at the Dunham factory. The per cent of butter-fat ranged from 3.6 per cent to 4.2 per cent. The experiment was carried on for six days from the 4th October to the 10th. There were many difficulties to contend with in the making of these cheese. One of the greatest of these was caused by the farmers feeding rotten potatoes to their milch cows. The potato crop in Dunham was a failure to a certain extent, but the crop did not fail to strike us in the cheese factory. It is difficult to detect the odours of rotten potatoes in cold milk, but it comes out with a vengeance when heated up. An investigation was made one morning to find out what the farmers were doing with their dairies. A large number of them admitted having fed their cattle rotten potatoes. The hogs would not eat them, so they fell to the cows, and they ate them readily.

Every farmer should pride himself in having the best milk aerator obtainable. For the very small sum of two dollars, a first-class machine can be had and it will do much good in one season, to say nothing of the reputation of the farmer who uses it.

The Babcock Tester.

I was very much pleased with the Babcock milk tester in every way. Many experiments were tried by cheese-makers and others interested in milk testing by way of dosing the milk with water, skimming, adding cream to milk and various other ways to test its accuracy. In every case it was proven that it was a reliable test.

I also made experiments myself in testing sweet milk *vs.* sour milk and milk in advanced stages, and the test gave equal results in sour milk as in sweet or advanced milk, the only difficulty experienced with operating with sour milk, *i.e.*, thick milk, is getting it into the test bottle. One experiment where the milk was put into the test bottle and allowed to sour, brought about the same result as its duplicate which was kept sweet.

The machine is very easily operated: any one can do it successfully after a little practice. Great care must be taken in handling the sulphuric acid, and apart from that, practice will enable the operator to manage it with safety and correctness.

Experimental Dairy Stations.

There are many places in the Province of Quebec that would be suitable for a dairy station, and there is not the least doubt that a station would be patronized by all who were within reasonable distance from the station. There are various reasons why a dairy station should be established.

It would open the eyes of the farmers from the very fact alone that it would be more money in their pockets, as the very best article possible would be manufactured.

The station would be kept in perfect condition, thereby setting the example to all cheese and butter-makers as to how their own factories should be kept.

It would develop and encourage dairy farming, more especially winter dairying, which the farmers of our Dominion must certainly work into, if they expect to realize a profit for their labour on the farm. Winter dairying cannot fail to pay if properly carried on, and besides the farm receives the benefit of the extra feeding.

Both cheese and butter-makers could visit the station and receive instructions in the best methods of making cheese and butter. Spring and autumn would be good times to visit the station and good instructions could be given in this way.

The work of travelling instructors has gone a long way towards reaching the desired mark, but it is impossible to reach all makers in any one season.

I have had as many as eighteen makers at one meeting, and at the same time received notes from other makers expressing their regret at not being able to attend the meeting. So to meet the requirements of all concerned the station would be the most desirable.

The expense incurred through the experimental station would not be nearly so great as the expense of travelling instructors.

The only trouble I can conceive of in establishing an experimental station is that everybody will want it in their own district. There are numerous districts where corn is grown successfully, so there is nothing lacking to make the scheme prosperous and successful. The water supply in mostly every county in the province is, I may say, perfect. Springs and streams of pure water abound.

Wherever I went and talked with people interested in dairying and other pursuits of life, they were loud in praising the Dairy Commissioner's work, for what good instructions they had received from him from time to time.

I was greatly pleased with the beauty of the grand old province of Quebec. I enjoyed my travels through the province, especially while with Mr. Chapais, and I trust, as I have had both the pleasure of seeing and working, that my work has been satisfactory to all concerned.

I have the honour to be, Sir,

Your obedient servant,

C. C. MacDONALD.

(4) REPORT OF JOHN ROBERTSON (*for New Brunswick*).

To Prof. J. W. ROBERTSON,
Dairy Commissioner, Ottawa.

SIR,—I have the honour to submit my report on dairy work for the season of 1891.

During the month of May, my work was in Western Ontario. On the 6th May, I met the other instructors in dairying at the Brownsville cheese factory, where we used the Babcock milk tester every day, and at the same time superintended the making of cheese, and some experimental work.

I visited four factories in Western Ontario, viz.: Thames, Avonbank, Geary's and Appin, where I gave instruction in cheese-making and carried on some experimental investigations.

These factories are all in very good working order. There is a want of uniformity in the quality of the cheese which might be avoided and the quality made more uniform in the individual factories, as well as in the aggregate. There is still a difference of opinion with makers on some points of the process which these experiments may help to explain.

Work in New Brunswick.

I arrived at Fredericton on the 16th of June. I called on Mr. Julius L. Inches, Secretary of Agriculture for the province, from whom I received much valuable information, and to whom I am much indebted for kindness and readiness to assist and encourage the work in which I was engaged.

Agricultural capabilities of the Province.

At first sight the agricultural capabilities of the province do not seem to be very great. Much of the country has a hilly, rocky appearance, and some parts have been rendered useless by being several times burned over with fires. There are other sections of the country of fairly good land, which if properly farmed could be greatly improved.

The soil is mostly of a light, stony nature, some parts with good soil mixed with small stones which keep it open, other parts are springy and need under-draining. Some farms are very well cleared, especially in the counties of Carleton and Westmoreland.

In Carleton county the farmers have gone into dairying more than in any other county. Westmoreland has engaged more in raising beef cattle in the past. The system of farming that has been carried on in the past, has not been of such a nature as to improve the land; it has been the very reverse of that. The principal crops have been oats, potatoes and hay. They have been mostly sold and carried off the farms, which has reduced the productiveness of the soil in a far greater degree than if stock had been kept, and the produce of the land mostly consumed upon the farms. If the produce of cattle, sheep and swine had been made the channel of bringing in returns to the farmers, the land would be enriched and its productive powers increased by a liberal application of manure.

On the flats and islands of the St. John River there are fertile lands, which produce good crops of hay annually. In most instances the hay is shipped off, instead of being fed to cattle on the higher lands, which need to be fed in order to produce better crops or better pasture. As a farmer's stock and farm improves he himself improves.

The south-eastern part of the province contains some excellent land; in the districts of Sussex and Sackville there are fine opportunities for raising and keeping stock of the very best breeds, especially dairy stock. The natural conditions are adapted for dairy work, and the pasture is sound and sweet, with abundance of fine spring water. The soil is capable of growing large crops for cattle food, either for use in a green or in a preserved state.

The climate is also favourable for dairy work; the nights are cool and it is not unpleasantly warm during the day, with a fine atmosphere to breathe at all times, giving health and pleasure to man and beast.

It seems exceedingly strange that the province should pay out thousands of dollars every year for dairy produce, which could be produced within the province as cheaply and of as good quality as in the Province of Quebec, from which this province imports a very considerable quantity.

I have no doubt but in a few years this will be stopped, and instead of this province being an importer, it will become an extensive exporter, receiving thousands of dollars yearly from the exports of cheese and butter, instead of paying thousands of dollars to its neighbours for that which it can as well or better produce within its own borders.

Cattle.—The stocks of cattle are very much mixed. In some districts there are a few Durhams and some crosses of that breed. In some districts the Ayrshire breed has been introduced and seems to answer the purpose of improving the breed of cattle for dairy purposes very well. The Jersey breed has been introduced to some extent, but mostly about the towns as a family or butter cow. A few crosses are met with occasionally in country districts.

The Holsteins have been lately introduced to a considerable extent in the dairy districts, and are likely to succeed in improving the dairy herds of the province.

There are evidences to be seen here and there of farmers making progress in improving their herds; and although progress may be slow, yet, by a few setting the example and succeeding, others will be encouraged to follow, and the result will be as in other places, as a farmer improves his stock he improves his farm, his buildings, all his surroundings and himself.

Sheep.—In some districts numbers of sheep are kept by farmers on cleared land, but their number might be greatly increased, as some districts of the country are hilly and not so well adapted for cattle; but they would make, under proper management, splendid pasture lands for sheep.

Dairying.—The county of Carleton is the principal dairy county in the province. There are six cheese factories and one butter factory in the county. Jacksonville, owned by Mr. Jas. Good; Bellville, owned by Mr. John Martin; Waterville,

owned by Messrs. C. L. Tilley & Son; Richmond Corner, owned by C. L. Tilley & Son; Avondale, owned by a company of farmers, and managed by Mr. Jas. A. Bartir; and Tracey Mills, owned by Mr. Jas. N. Sloat.

These factories received 27,500 lb. of milk daily, from which about 50 cheese were made. With a few exceptions, the milk was of good quality, the poorest sample gave 2.50 per cent of butter-fat and the highest 4.50 per cent of butter-fat, with an average of 3.69 per cent of butter-fat given by about 250 samples tested.

Cheese.—The quality of the cheese, all things considered, was very fair. The cheese were all made on the old American system of 20 years ago. The milk was set when it was taken in; no idea of ripening the milk before setting it, in cold weather, was entertained; the curd was stirred a while and then salted and put to press; no care was exercised to examine whether the curd was in a proper condition or not; the great thing seemed to be to get through with the work as quickly as possible. Consequently there was a want of uniformity in the cheese from the want of system in the making of it. Some days the cheese were very fair, other days they were too soft, weak in body, open in texture, or with flavour not good.

The makers were doing the best they knew, but had never received the instruction which they needed.

The makers are intelligent men and men who are interested in their work and as they own the factories in most cases, it is to their own interest as well as to that of patrons, that they should improve the quality, and increase the quantity of cheese which they manufacture.

The prospects are good for a very great increase in the dairy business of the province; arrangements have been made, or are proposed to be made during the winter, to build a number of cheese factories in the spring of the year. One new company is now chartered at Stanley, in the county of York, to erect and fit up buildings to make either butter or cheese, or both, as circumstances may require, with the prospect of milk from over 400 cows to start with.

A creamery was built and operated at Woodstock last season on the cream-gathering system. The buildings are good, and fitted up with improved machinery for making butter, a very fine quality of butter was made, but the farmers have not given it the patronage and support which was expected.

There is a small cheese factory at Andover, county of Victoria, but it has not been supported by the farmers as it should have been.

There is also a small factory at Sheffield, county of Sunbury, and one at Hampstead, county of Queen's. For some reason, these factories have not been supported by the farmers as they should have been.

There is a good factory at Havelock, King's county, built last spring with good prospect of doing a large business in the future. It is situated in a good dairy district of fine pasture land on limestone rock, with plenty of good spring water.

It is owned by Mr. J. E. Slipp, Sussex, and managed by Mr. R. T. McCready.

There is also a creamery at Sackville, where the milk is brought to the creamery and run through a separator, the farmers taking back the skimmed milk. It is situated in one of the best farming districts in the province. Many of the farmers some years ago went into stock-raising with beef cattle, but have rather gone back of late, as beef cattle were not paying them. I advised them to go more into dairying. The situation and conditions are unsurpassed for dairy cattle, being situated along the great marshes where large quantities of hay are grown, and where the high land is capable of growing fine crops and affording good pasture for dairy purposes.

On the 27th July I went over to Prince Edward Island, spent four weeks there, and returned to New Brunswick on the 22nd of August.

I visited all the cheese factories a second time: all the makers, except two, had adopted some of my suggestions; and in all these instances there was considerable improvement in character and quality of the cheese.

The change in the system of making led some of the makers to study the matter, work some experiments, and take notes of the results in a very intelligent way. They were beginning to see much to learn in connection with milk and its

manufacture into cheese. It is difficult to get men to change from an old system with which they had been long accustomed to another system that is entirely new to them, and sometimes they do not get hold of the new system aright. In those cases the new system is rejected as a failure, when in fact it is the person that is the failure in failing to apprehend the system of improvement which has been set before him, and the last state of that person is worse than the first.

I spent September in making cheese, a few days at each of the factories, and in giving instructions and explanations of different points in the process of making, which were gladly received and appreciated by the cheese-makers.

Your instructions were for me to make cheese for export, in order to test the British market with cheese made in the province.

I visited the factories and made cheese a few days in each. I visited these factories afterwards to see how the cheese were curing. I expect a fair lot of cheese has been made for shipment.

Meetings.

I addressed fourteen public meetings of dairymen and farmers, at the following places: Havelock, Sackville, Fredericton, McKenzie Corner, Redbridge, Waterville, Centreville, Jacksonville, Millville, Kingsclear, Keswick, Stanley, Maugerville and Sheffield.

All the meetings, except two, were well attended; average attendance, about 150; at Stanley over 200 were present, and many questions of importance were asked and discussed at these meetings; occasionally a number of the ladies present took part and asked questions on points in butter-making.

Those present always expressed their thanks for the benefits derived, and the pleasure and interest which these meetings had given them.

One hundred and sixty cheese of August and September make were selected from the factories in Carleton county. One hundred and fifty-four boxes were shipped to Halifax for the English market, and six boxes were sent to the Experimental Farm, Ottawa, to be stored till spring, to find out the keeping qualities of cheese made in the province.

My work was something new to the dairymen and farmers of the province. They had no idea of the nature of the instructions given at our meetings till they attended them, took part in them, heard for themselves of the advantages of mixed and dairy farming, of the profits to be made from good stock when properly cared for, and how milk can be profitably produced and manufactured into cheese and butter. My work has awakened an interest among the farmers, and kindled a hope in many of the farmers of the province that in the near future there are possibilities within their reach of successful farming which hitherto were unknown to many of them.

In order to systematize the dairy work of the province, and to use to the best advantage the assistance given by the Dominion and Provincial Governments, I considered it essential that a provincial dairymen's association should be formed, and through the association the best means may be adopted of providing and disseminating information and instruction to the farmers of the province on the various branches of dairying.

I am glad to report that I have succeeded in receiving the names of over one hundred farmers and dairymen willing to become members of a provincial dairymen's association, which, it is to be hoped, will be organized at Fredericton early in the spring.

The farmers of the province have appreciated very highly the work of the Dominion Government in the Department of Agriculture, especially in dairy work, which they hope will be continued with increased usefulness to this province where so little has been done and so little is known of the true science of dairying.

I have the honour to be, Sir,

Your obedient servant,

JOHN ROBERTSON.

(5) REPORT OF JOHN ROBERTSON (*for Prince Edward Island*).

To Prof. JAMES W. ROBERTSON,
Dairy Commissioner, Ottawa.

SIR,—I have the honour to present my report of work on Prince Edward Island. I arrived at Summerside, P.E.I., on the 27th of July, and travelled by rail to Charlottetown. I was very favourably impressed with the appearance of the country; the crops looked well where the land had been well farmed.

Agricultural Capabilities.

A great part of the soil is a red sandy loam, and easily cultivated. It needs frequent manuring to improve and increase its productiveness. All the ordinary spring crops can be grown well under proper cultivation.

The greater part of the island is arable; a few parts are hilly, and parts on the north shore are sandy and uneven; but this waste land does not extend far from the shores.

Crops.—Spring wheat was an exceedingly fine crop, and farmers are beginning to sow more of it than in former years. Under proper management I do not see anything to hinder as much spring wheat being raised on the island as might supply all its own inhabitants with bread.

Oats were a very good crop. The great bulk of them are exported, but proper care has not been exercised in selecting the best seeds, and complaints are heard of farmers not cleaning their grain properly.

All kinds of root crops grow well when properly attended to. Potatoes are grown to a very great extent; the soil is well adapted for potato cultivation. Land that is so well adapted to grow potatoes would also grow good crops of corn, and corn can be grown cheaper than potatoes. A good crop of corn will produce more food for cattle than a crop of potatoes, and one of the best methods of restoring the fertility of the soil is by growing large quantities of food for cattle and keeping cattle on the farm to consume the feed.

Hay.

Generally speaking, the land is well watered, and when it is seeded down in proper condition it gives good crops of hay, and affords rich pastures. In some districts there are good Shorthorns and grades of that breed; Ayrshires have been introduced to improve the dairy cattle. Holsteins have also been introduced, but until there is greater interest among farmers taken in dairy work there will not be much interest taken in improving dairy stock. The past experience of the farmers in dairy work has not been successful, but that was not because the conditions for dairy work were unfavourable. Neither in the land, nor the climate, nor the cattle is the cause of failure to be found; but partly in the way the business was conducted at the factories, partly because the farmers were not informed in the business, and partly in the absence of determination on the part of the patrons to make it a success.

These difficulties have been overcome by farmers in other provinces not so favourably situated for dairy work as Prince Edward Island is, and I see no reason why dairy work could not be made a success on the island as well as anywhere in the Dominion.

It does seem strange that people living on such a beautiful, fertile island, and having a summer climate scarcely equalled anywhere, should pay out thousands of dollars annually for bread and butter and cheese, when all these thousands could as well be saved by the farmers producing the bread and butter and cheese themselves. They might produce all they need of these commodities, and have some to export besides, which would bring in money from outside sources, instead of paying money to outsiders.

Dairy Work.

There is only one factory in operation on the island, viz., Cornwall cheese factory, situated about eight miles south-west of Charlottetown, owned by a company of farmers and doing a very fair business, which is likely to increase very considerably in future. It is supported by 54 patrons, who supply about 6,000 pounds of milk daily and about 9,000 pounds on Mondays. I am glad to report that during the latter part of the season the quality and flavour of the cheese were very much improved.

The quality of the milk was very good on the average. The highest sample contained 4.25 per cent of butter-fat and the lowest 3.50 per cent of butter-fat. Several private dairies make a few cheese, but most farmers make butter of what spare milk they have. Very few farmers keep many milch cows, and consequently there is not much dairy work done on the island, which is to be regretted.

Meetings.

I addressed twelve meetings of farmers and their families in different districts, and I may say I never met with a more interested and intelligent class of farmers. The young people also seemed to be hungry for information about the farm, the crops and the cattle, as well as the dairy.

The meetings were held as follows: New Perth school, Vernon River Bridge hall, New Glasgow hall, St. Peter's Road hall, Cornwall school, Cavendish hall, North Milton hall, Park Corner hall, Summerside town hall, Crapaud hall, Kensington hall, Hamilton hall.

I am indebted to Mr. Arch. McNeill, secretary to the Provincial Government, for much valuable assistance given me in my work. I received help in arranging the meetings from the members of the Local Legislature and Legislative Council. By being present at them they set a worthy example to the farmers and their families of the island. I hope the dairy interests may prosper in their island home and that every other interest may share in the prosperity of the farmers.

I have the honour to be, Sir,

Your obedient servant,

JOHN ROBERTSON.

(6) REPORT OF S. L. PETERS.

To Prof. JAMES W. ROBERTSON,

Dominion Dairy Commissioner, Ottawa.

SIR,—In forwarding you my report in connection with the work of the travelling dairy, for the month of December, 1891, I am glad to be in a position to say that your efforts in assisting our dairymen to improve their dairy products, by giving them an opportunity to witness practical illustrations in butter-making on the most approved lines, have been greatly appreciated. I may also add that the addresses on dairy topics in connection with the illustrations have been very welcome and have elicited much inquiry. I am agreeably surprised at the very deep interest manifested at all the meetings. The time appears opportune and the field ripe for labour. The local press have given quite extensive editorial notices of the work, while the correspondents have given as extensive reports of the meetings as could well be expected.

The press notices have brought many applications for more meetings. Fruits of our labours are already manifest in localities where meetings were held. The dash churn is being laid aside, the revolving churn will take its place, and the butter will be made as illustrated. Particular enquiries are being made about silos and their construction, with a view to building during the coming summer. A gentleman from King's county, on the eastern side of the river parish of Kars, came 16 miles on Saturday to see my silo and the ensilage, and insisted on my going to his parish to hold a meeting, which I arranged to do. While I anticipated good results, I am safe in saying they will be very much better than I anticipated.

I have been able to hold twenty-one meetings in all in the month.

The following are the localities where meetings have been held:—

King's County.

	Lb. of Butter made.	Attendance.
Oak Point	5	54
Belyea's Landing.....	7	76
Greenwich Hill.....	3	41
Neripis—No meeting.		

Queen's County.

Upper Otnabog.....	7	48
Queenstown	5	45
Upper Hampstead.....	20 (2 illustrations)	46
Hibernia	5	70
Welsford.....	4	43
Armstrong's Corner.....	3	40
Olinville	4	74
Jerusalem, 10 a.m., 6.30 p.m.....	4	47
Summer Hill.....	3	38
Gagetown	4	65
Upper Gagetown.....	3	54
Hampstead.....	7	67
Mill Settlement	3	35
Lawfield.....	(no cream)	29

Sunbury County.

Lower Berton	4	65
Berton Hill.....	3	43

Upper Berton...very stormy; meeting postponed.

Whole number of meetings, 21. Pounds of butter made, 94. Total attendance at meetings, 980.

I returned home from Sunbury county on New Year's Day, as the roads were in so bad condition as to almost be impassable for a carriage, and so rough that people were prevented from going any distance to meetings. There are still six or seven localities in the county of Sunbury, on the west side of the river, in which it is desirable to hold meetings. This would complete in a very satisfactory manner our work on the west side of the three counties named.

I shall be pleased to carry out any additional work that you think best to be done.

I have done my travelling with my own horse and carriage, for which no charge is made.

I have the honour to be, Sir,

Your obedient servant,

S. L. PETERS.

QUEENSTOWN, N.B., 4th January, 1892.

(7) REPORT OF J. W. WHEATON.

TORONTO, 26th December, 1891.

To Prof. JAS. W. ROBERTSON,
Dairy Commissioner, Ottawa.

SIR,—I respectfully submit the following report of my work in the province of Nova Scotia during the season of 1891.

The object of my work was to visit each of the cheese factories in the province, inspect the milk, give practical instruction to the makers in the best methods of handling and caring for the milk, so as to make a first class article of cheese, and to address meetings of farmers and others on dairy subjects. I gave particular atten-

tion to the care of milk for cheese factories, the providing of proper food for cows, and the advantages that would accrue to the farmers by following an intelligent system of dairy farming.

I visited the twenty factories that were in operation during the summer, and made 716 tests of milk by means of the Babcock milk tester. These tests were made with a view not only of finding out who the honest patrons were, but more especially of getting some definite knowledge of the general quality of the milk throughout the province. A report of each test was left at the factory, together with a statement of the number of suspected samples. The cheese-maker, or committee of each factory, was recommended to visit each patron suspected, with a copy of the test, and warn them of the danger they incurred if such practices were continued. It was thought best not to prosecute at the beginning, as the patrons would be more watchful and careful when it was known that the milk had been inspected, and that the business was being looked after. Such proved to be the case, as my second visit to some of the factories showed considerable improvement in the quality of the milk. Nineteen meetings were held, mostly in connection with my visits to the factories, while later in the season a few were held in localities where new factories were likely to be started. The attendance was fairly good—an average of about twenty-five at each meeting. No special arrangements were made about advertising the meetings, word merely being sent to the manager of the factory, or some one else in the neighbourhood, asking that a meeting be arranged for. Many of these were arranged for the afternoon, when the farmers could not very well attend, and this may account for the small attendance at a few of the meetings. A keen interest was manifested in all that was said, especially in all relating to the growing of fodder corn and the better improvement of stock. There seemed to be a demand for further information on all matters relating to dairy farming and to farming in general among the people. In many places a larger attendance was promised in the future, if meetings were held, while requests were received for meetings in several localities where factories are not in operation, which I was unable to overtake before leaving the province.

Dairying in Nova Scotia is still in its infancy. Factories were started in a number of localities in the western districts some fifteen or twenty years ago. These in a few years were compelled to shut down, excepting three that were in operation in Annapolis county last season. Their failure was due, to a great extent, to the purchase of the milk at too high price by the manufacturer, who, not being able to realize a remunerative price for his cheese, was compelled to close up his business after finding his finances in a worse condition than when he began the business. The bulk of the Nova Scotia cheese is now made in the eastern districts, principally in Antigonish County, where there are eleven factories, and Cape Breton, where there are four. These factories are run on the co-operative system, the cheese being sold at the highest market price when ready for shipping, and the price realized, after deducting the manufacturers' charge for making, going to the patrons. The price paid to the patrons last season ranged from seventy to seventy-five cents per 100 pounds of milk. No cheese was shipped out of the province last season, excepting one or two small lots that were sent to Newfoundland, Prince Edward Island and Jamaica. In fact, the demand in the local markets in the fall was greater than could be supplied by the factories then in operation in the province. The quantity of cheese manufactured in a number of the factories last season was less than formerly. This may be accounted for in this way: When these co-operative factories were organized four years ago the patrons signed an agreement by which they bound themselves to supply the milk of a certain number of cows for a period of three years. This agreement having expired, in a good many cases, the year previous to my going to the province, the people, feeling that they were no longer bound to supply milk, began to assert their independence and withdraw their support. I made personal and definite inquiries on this point in all the places that I visited, and in only one or two instances did I find any one who was not convinced that the cheese factory paid well. The great difficulty, I was told, was in conveying the milk to the factory.

The plan now in operation is for each farmer to draw his own milk to the factory; this, in a great many cases, necessitated a drive of five or six miles every morning with from 75 to 100 pounds of milk. Those farmers who lived some distance away, finding that it did not pay to go so far every morning with a small quantity of milk, quit sending as soon as they were released from their agreement. This is a serious difficulty and will have to be provided for, if the cheese business in Nova Scotia is going to be as successful as it ought to be. It would not have occurred if permanent milk routes had been established when the factories were first organized. These are much harder to establish now, as those farmers living near the factory, having become accustomed to it, prefer to draw their own milk, while those some distance away are not willing to do so, and unless both parties unite, enough milk cannot be secured on the various routes to make it worth while for one man to devote his time to collecting it. The amount of milk received at each factory ranges from one to three tons per day. They commence operations about the 1st of June and close about the end of September, thus making a very short season of four months. This is too short a time for the farmer to make all the profit out of his cows that he should. The cows, as a rule, calve in May and are put dry about the end of October or middle of November, thereby making it extremely difficult for a cow to give enough milk during the milking season to pay for her keep during the whole year. The farmers in many instances do not appreciate the benefits derived from the cheese-factory as much as they should. Many of them look upon it with suspicion, supposing that the manufacturer gets all the profits and that they are putting him under great obligations to them, by supplying milk to his factory. There seems to be a general want of that sympathy and co-operation between manufacturer and patron that is necessary to make the business a permanent success. This can be remedied, to a great extent, by bringing before the people the methods and means of operating factories in other places, for example those of Ontario. Those difficulties mentioned above are not so noticeable through Cape Breton, where the factories were in operation for the first season in '91. I was able, I think, by bringing before the people there the methods adopted in other places, to infuse more confidence in the business among the farmers, and to lead them to co-operate more with the manufacturer in making their factory a paying concern. All the factories in Cape Breton and the majority of those in Nova Scotia are owned and operated by private individuals; only six being controlled by joint stock companies of farmers. As far as my observation goes, I think that a number of factories controlled by one person is the best way of carrying on the business until the amount of cheese produced is sufficient to warrant the establishing of local cheese markets similar to those in Ontario. It would be better if the farmers owned the buildings and plant, as they would then have a personal interest in the concern. However, in new localities, where I attended meetings in the fall, the farmers did not care to invest money in the business themselves, and preferred to have some capitalist assume the responsibility and control.

There will probably be two or three new factories in operation in Cape Breton and a few more in Nova Scotia next season.

There were no creameries in operation last season in Nova Scotia. Considerable butter was made by the farmers themselves, who in a few localities where they made a business of it, turned out some of pretty good quality; but generally the butter made throughout the province is of a very inferior kind. This butter is bartered for trade at the country grocery, excepting a few cases that came under my notice where the farmer shipped it at his own risk. There is great need of practical information and instructions before the butter produced in Nova Scotia has attained to that excellence and perfection which should be the aim of every good butter-maker. An experimental creamery, operated during the fall and winter so as to show the farmer how profitable the business can be, would do invaluable service in developing and improving the butter industry of Nova Scotia.

The country generally is naturally adapted for all kinds of dairy farming. The soil is somewhat loamy, and if properly cultivated and fertilized, is capable of producing good succulent grasses suitable for the production of good, pure milk. The

area devoted to pasturage is quite large, especially in the eastern districts, the higher lands and hill slopes furnishing lots of grass during the early season, while the lowlands and intervalles come in well for the drier season. There is an abundant supply of pure, fresh water; nearly every farmer having a spring or spring water running through or near his farm. The climate generally is favourable for dairying; the nights are cool and the sea breezes prevent the frequent occurrence of that muggy, close weather, which makes the preserving of milk in a pure condition a difficult matter. The cold, wet weather during May in the eastern districts is a serious hindrance to the dairy business, as it keeps the pastures back and necessitates feeding the cows till the season is well advanced. In cases where winter's feed is scarce and shelter is poor the cows suffer considerably during the early spring, and are rendered unfit for supplying milk during the summer. The winters are long, and cattle have to be fed in stables seven and, in a number of places, eight months of the year. Frequently, where the shelter is insufficient and the proper food is not provided, the cows come out in the spring in a very poor condition, unfit for supplying good milk and lots of it, and requiring all the extra food derived from the pastures to build up the constitution to withstand the coming winter. However, in several localities, good stabling and good food, such as fodder corn, &c., have been provided by a few farmers, who are making dairy farming pay; thereby proving that the difficulties mentioned above may be overcome by a little care and forethought. The quantity of milk given per cow on an average is not as large as it might be. Still in several places in Cape Breton and in the Antigonish and Annapolis districts cows were found that were giving as much milk per day as some of the best Ontario cows. These instances, however, are rare in the districts that I visited, and 15 lb. per day per cow is about the general run. At one factory a farmer sent all the milk from twenty cows to the factory, and his pass-book showed only about 200 lb. per day. This condition of things is due altogether to improper selection of cows, poor feeding, poor care, and continually breeding from scrubby stock and poor milking strains. There is need of much information and education of the farmer along these lines.

The cattle, as a rule, are small. In the western districts, through the Annapolis valley and along the Stewiacke River, some good-sized steers were seen that would be large enough for shipment to the English markets; but generally through the eastern portion and through Cape Breton the stock cattle are small and somewhat inferior. All the beef cattle of the eastern districts are shipped to Newfoundland, where inferior kinds are easily disposed of, thereby giving the farmers no incentive to improve their herds. The cows, therefore, in many places, are small and very inferior, and the bulls used are mostly of the scrubby kind. However, there is quite a sprinkling of improved stock in many localities, such as Truro, Antigonish, River John, Whycocomah, Mabou, &c., principally Ayrshires, Jerseys, Durhams and a few Holsteins. The general run of the stock in Nova Scotia needs to be considerably improved before the farmers are in possession of good profitable beef-producing and milk-producing herds of cattle.

All kinds of crops grow very rapidly when the growing season begins. Hay is the staple crop, and large areas of it are grown. The yield per acre, on the whole, is small, as in many of the meadows in the higher lands that have been cut continuously for a period of 30 or 40 years, without being broken up or nourished in any way, the timothy and clover have died out, leaving only a very spindly growth of inferior native grasses, mixed sometimes with all kinds of weeds. These on an average do not yield one ton per acre, and many fields that I saw would not pay for the cutting. The intervalles and lower lands of Cape Breton, Antigonish, Pictou, Cumberland and Annapolis counties, and also the Tantramar marshes, and those of the Minas Basin, generally yield an abundance of superior hay if well looked after.

Oats have been grown very extensively in many localities, especially in the east. Of late the amount of oats sown has not been so large, as they have not yielded as well as formerly, due mostly to the lack of change of seed and to the gradual decreasing in the fertility of the soil in many places.

No fall wheat is sown, as the winters are very unfavourable for it. Very little spring wheat or pease, and not very large quantities of barley, are sown. All spring grains would grow well if the ground were properly worked and put in condition for them.

A great many roots, chiefly turnips, are grown for feeding cattle through the Annapolis valley and in Cumberland and Colchester counties. Through Cape Breton and eastern Nova Scotia only occasional fields of roots were seen, but these showed clearly enough that roots of all kinds could be grown very profitably if given the proper care.

Fodder corn is very little grown. A few of the farmers in different localities have tried it, but not knowing the plant very well, and being ignorant of how to care for it for winter's use, they have given up growing it. From inquiries made in regard to it and from what I observed myself, I think fodder corn can be grown very profitably. Care, judgment and a little work only are needed to make it a success. The climate, perhaps, may not be as favourable for its growth as some parts of Ontario, and the frosts may come earlier in the fall; still, if good judgment is used in selecting and preparing the ground and the plant is given every chance during the summer by cultivating and loosening the soil around it, I think it will be sufficiently developed before the time for cutting. Though it may not reach the glazed stage, in many places, before the frosts come, still it will be near enough to it to make a very valuable food for winter. Last season was rather unfavourable for corn-growing, as there was considerable cold, wet weather. However, some fine fields of corn were seen near Lawrencetown, Annapolis County, Antigonish town and Lochaber, Antigonish County, and Mabou, C.B. A large number of the farmers are prejudiced against corn growing, as they think it will not mature and cannot be preserved for winter's use without great expense. At the meetings I was enabled to give them practical information, which will, I think, have a tendency to dispel their prejudices and induce many of them to try it next season. The samples of corn that you sent down for distribution were given out pretty widely to the farmers in the Antigonish district, together with your printed directions for planting, &c. They came a little late and therefore were not planted soon enough to give them a chance to show the best that could be done; still, I had some very favourable reports from a number of them before I left the province. There are not many silos in use, but those that are, as a rule, give good satisfaction. The further development of the dairy industry in Nova Scotia will depend, to a great extent, upon the general adoption of corn growing as food for cows, as the fodder now in use is too expensive and not suitable for producing milk during the winter.

The cheese factories are generally well situated, usually on the bank of some stream, and in the majority of cases with spring water running into the building. The buildings are good, excepting three in the Annapolis district that have been built for a number of years and are somewhat in need of repairs; and two in Antigonish county that have been built with a view to cheapness and not to utility. With these exceptions the buildings are new and well finished, and reflect credit upon the owners. In many cases they are painted, and present a tidy, attractive appearance from the outside. The equipment is good. All the improvements in machinery, &c., are to be found in nearly all the factories built within the last five years. No engines are in use, the curds being ground by hand; and in several small factories self-heating vats are used instead of boilers. As regards cleanliness, there is some room for improvement, especially in connection with the curing-rooms. In many cases the air of the curing-room was very impure and unfit for curing cheese properly. I think many of the makers did not realize the importance of having the cheese cured in a room perfectly sweet and clean. The making-rooms are kept in fairly good condition, yet in a few of them the nooks and corners are sadly neglected, thus showing that the habits of cleanliness on the part of some of the makers are not of a very high order. In many sections the roads are not conveniently arranged for laying out permanent milk routes, as they run along both sides of the rivers, thereby making it necessary to have two milk waggons where

otherwise one would be all that is needed. However, the roads are never in a very bad state during the cheese season, and the almost impassable condition of roads, as seen in some parts of Ontario, is rarely met with in Nova Scotia.

The tests for butter-fat made by the Babcock milk tester from samples of milk taken from the vat in each of the factories I visited showed amounts ranging from 2.9 per cent to 3.8 per cent, or an average of 3.32 per cent for each factory. This is a rather low average, and is due, to a great extent, to the improper selection of cows, poor care and feeding during the winter, the want of salting the cows, and perhaps some of the milk being tampered with by the patrons. As regards the last, many of the people are given to keeping the strippings or removing the cream, partly, I think, through ignorance of the consequences. I heard of one man who had a herd of six cows and agreed to send three cows' milk to the factory; his plan was to take the first half of the milking from each of the six cows and send it to the factory and to keep the last half at home. Of course this was not done through ignorance. In many places, however, good samples of milk were met with, showing 4 and 4.5 per cent of fat. In the Margaree district I met with a sample that showed 5.3 per cent of fat.

I would recommend more thorough airing of the milk before cooling, more cleanliness in milking, and in caring for the milking utensils. The cows should be salted regularly. It has been the general custom not to give the cows salt at all, to which fact, to some extent, may be due the small quantity of the milk given per cow, the comparatively poor quality of the milk and some of the peculiar flavours to be found in the cheese. Both the Cheddar and American fine-cut systems are used in making the cheese. The latter system is followed altogether by the makers in the Annapolis district. Here the cheese were generally soft and moist, with a sour whey flavour, and where the curds had been stirred drier, the cheese in many cases were open and porous or hard and bitter. The cheese made by the Cheddar system, which is in use altogether in the eastern districts, were more even and firmer in body, but in a few places there was a tendency on the part of the maker to leave too much moisture in the curds, with a view to lessening the average number of pounds of milk required to make a pound of cheese. The cheese in many factories were weak in body, and loosely put together. The flavour, as a rule, was not very clean, and only in exceptional cases were cheese of very fine creamy flavour met with. However, considering the inexperience of many of the makers and the newness of the business, much credit is due the promoters of the cheese industry in Nova Scotia for the comparatively high standard already attained in the quality of their cheese. I think my instructions to the makers, and the help I was able to give them during my visits, have been beneficial, as on my second visit to some of the factories a decided improvement was noticed in the quality of the cheese produced. I would recommend more thorough ripening of the milk in the factory before setting, firmer cooking of the curds and more stirring before matting, so as to secure a firmer bodied and better flavoured cheese. If more care is given on the part of the patrons and makers, there will be no difficulty in making as good cheese in Nova Scotia as in any part of Ontario.

At your recommendation I made 100 boxes of cheese in the best way possible for shipment to England as samples of Nova Scotia cheese. It was thought that the best results would be attained by making them at one factory under similar conditions, and therefore Mr. L. C. Archibald's factory, in the town of Antigonish, was selected as one well situated and adapted for the purpose. We had the warmest weather of the season while making these cheese, thus rendering it difficult to keep the milk sweet and pure and to control the temperature of the curing-room. The milk in the vat showed 3.4 per cent of butter-fat, and later on 3.5 per cent. I ripened the milk sufficiently to cause the curd to be ready for cutting in from twenty to thirty minutes after setting. The curds were cooked pretty well, and were well stirred before matting. After they were matted they were piled over three or four times before grinding. I allowed the curds to mellow and ripen until the pure creamery flavour had been developed and the whey had been well separated

before salting I was able to turn out some fine cheese, firm and even in body, pure in flavour and medium in colour; and I hope they will answer the purpose, and will be able to accomplish the object you have in view of establishing a market in Great Britain for Nova Scotia cheese.

In respect to the project of running a creamery in the fall, for a short time after the factories close, in order to show the farmers how profitable a business winter dairying would be, I might say that as the season advanced it became more and more evident that sufficient milk could not be secured to make it worth while putting in machinery and operating it last season; nevertheless, I think the scheme a good one, which can be carried out in the near future, if the people prepare themselves for it.

The past season has been a very pleasant one to me, and I hope I have accomplished something in the way of promoting the dairy industry in Nova Scotia. I was well received by every one, and I can recall no instance in which I did not meet with the co-operation and sympathy of the makers and owners of the factories visited. I have to thank the managers of the different factories and other gentlemen in the localities that I visited, for the trouble they have taken in announcing and arranging for meetings and for their assistance and kindness in making my visits as pleasant as possible.

All of which is respectfully submitted.

Your obedient servant,

J. W. WHEATON.

(8) REPORT OF J. B. McEWAN.

OTTAWA, January, 1892.

Prof. JAS. W. ROBERTSON,

Dominion Dairy Commissioner, Ottawa.

SIR,—At your request I submit to you the following report of the work accomplished by me under your supervision from 3rd May, 1891, to the end of the year.

My appointment dated from 3rd May, 1891, and acting on instructions received from you then, I visited the Brownsville cheese factory, and in company with other members of your staff, spent two weeks there, carrying on a series of experiments in milk-testing and cheese-making.

Arrangements having been made to visit a number of factories in different parts of the Belleville section, with the object of giving instructions in the most approved methods of testing milk and manufacturing cheese of fancy quality, I arrived at Belleville on the 17th of May, remaining in that section until 5th June. I visited a central factory in each locality, nine factories in all, usually spending two days at each, one day being given to cheese-making and milk-testing with the Dr. Babcock milk-tester for butter-fat, and Quevenne's lactometer for specific gravity, and the other day for which a meeting of the patrons had been called, being devoted almost entirely to milk-testing, and the time occupied by the meeting.

The interest manifested in these visits was most encouraging, a large number of cheese-makers in each section spending a day at the factory visited. The exchange of ideas and comparisons of different methods practised was necessarily productive of good, and the meetings were attended in large numbers by the patrons and those interested in the advancement of dairying.

The scheme of winter dairying as advocated at these meetings, the lessening of the cost of production by the growing of fodder corn for ensilage, the careful breeding of cows for general purpose dairying, the simplicity and apparent reliability of the Babcock milk tester, and the payment for milk according to its butter-fat, were heartily concurred in by those present, and the opinion freely expressed that dairying followed out intelligently under these conditions could have but one result, and that a great improvement in the financial condition of the farmer and a preservation and building up of the resources of the soil. The payment for milk according

to its quality would put a discount on dishonesty, in the watering and skimming of milk, and would be an inducement to breed for quality of milk, not quantity only, as at present, therefore ensuring a better quality of dairy products.

Adaptability of this Section for Dairying.

This section has all the natural resources for profitable and successful dairying. There are belts of land on which wheat-growing is extensively carried on, but they have suffered, as nearly all such lands have in Ontario, by being outcropped, and the farmers are realizing that they cannot profitably compete with newer countries in the growing of wheat. Especially is the Madoc section adapted for dairying. This country is more or less rocky, and therefore not so well suited for grain growing, and the supply of pure spring water is invaluable. The Peterboro' section is also naturally blessed with an abundance of good water. This boon of a never-failing supply of good water cannot be over-estimated, as it contributes so largely to the supplying of good milk to the factories.

Cows.

I found in nearly every section that the careful selection of cows for dairying purposes is very much neglected, and in a great many cases there are too many kept for the amount of feed supplied, with the results that the profits on a number of cows in a herd are eaten up, in the losses sustained, by possibly a larger number of poor ones.

Cheese Factories.

The condition of the cheese factories is a matter that was very forcibly impressed on my attention, and with a few exceptions there is urgent necessity for a great improvement in buildings and modern conveniences for the manufacture of cheese to give the best results. Even some of the buildings recently erected are far from being models, and owing to the plan of construction, necessitate a large amount of extra labour. Some of the older buildings are most dilapidated; the value of the whole plant would not exceed four or five hundred dollars, and still the cheese-makers are bound by contract to turn out a first-class quality, although the cheese in hot weather pass through a temperature of eighty and ninety degrees Fahr., owing to the faulty construction of the curing-rooms.

The inspectors of the Eastern Dairymen's Association are doing a good work, but under the present system of visiting individual factories, with such a large territory to cover, progress in their work is necessarily slow.

The making of cheese from directions laid down by "hand-books on cheese-making" should be discouraged, as they are in a great many cases productive of no good, and often contrary to the most approved methods. In some cases I found them being used in preference to hints given by an undisputed authority, based on the results of a wide range of experience and close observations. Some of these "books" undertake to lay down a "rule of thumb" for making cheese, and any person acquainted with the process of cheese-making will admit that to be successful in the manufacture of a first-class article at all times, under every varying changes of the weather and conditions of the milk, the maker must trust to his judgment and the more intelligence displayed the greater success. In my opinion any books published on cheese-making should come under the same system as the text books in our public schools, and be authorized by the proper authorities.

At this season, when new cheese were in demand, and every week meant a decline in the market, there appeared to be a misunderstanding between the cheese-maker and salesman on the matter of immediate sale and shipment of May cheese, which meant a loss to the patrons. The cheese-maker not having any understanding as to ready sales being made, naturally made the cheese to cure slowly to protect himself, and when the weekly sale was made, including cheese to within a few days of the hoops, the cheese would be objected to by the buyer for not being cured

enough for shipping, and the cheese had to go into the following week's sale at a reduced figure. In some factories I found the cheese being made to stand a temperature of eighty degrees, and the temperature of the curing-room was kept at about fifty-five.

The quality of the milk delivered at the several factories was very good. Taking samples of all the milk, I found it in nearly all cases to contain 3·4 per cent of butter-fat, varying from 2·6 per cent the lowest, to 3·6 per cent the highest. In some samples there was strong evidence of the milk having been adulterated. The condition of the milk was fairly good, and the use of aerators, at present rather limited, is being strongly advocated by those who have tried them and found them almost indispensable for the proper care of milk.

The quality of the cheese was very good, and a few of the factories had the best bodied May cheese I ever saw. The prevailing method of cheddaring in the vat apparently gives very good results in cool weather; but in hot weather, when the acid develops so quickly that the curd cannot be cooked properly, it is almost impossible to get the curd dry enough after dipping. By having a set of slats for the vat this could be avoided.

Viewing the cheese industry in this section from a business stand-point, there is room for improvement. The executive of each factory should insist on the sale of their cheese and delivery thereof being carried out on straight business principles, the inspection of the cheese at the factories, testing of weights and payment arranged for on delivery at station or warehouse.

The prevailing tendency to reduce cheese-makers' salaries is to be deplored, as it tends to make the best men careless, and will prevent the class of men that we are desirous to see enter the business from doing so, knowing the small wages paid for skilled labour and the heavy responsibility assumed.

Finishing this trip on 5th June, I immediately reported at the Central Experimental Farm, and from that date until 10th July I spent in the Experimental Dairy.

Arrangements having been made to visit Manitoba and the Territories, I left on 10th July for Brandon, and in company with you and Mr. Whitley spent the next four days there—at which time the Brandon summer fair was being held—gathering information on the location of creameries and cheese factories, and procuring the names and addresses of those most interested in dairying, in all parts of the country which we intended visiting.

It was during these few days spent in the live and thriving town of Brandon, situated in the greatest wheat-growing country in the world, that I began to form a faint conception of the vast resources of this wonderful country. The exhibits of agricultural products, considering that the fair was being held in mid-summer, were excellent. The entries in the live stock classes were numerous and the competition for honours keen. When you came to the display of farm machinery you realized that it was a grain-growing country indeed, and already the representatives of the different firms appeared to anticipate the bountiful harvest that was to come.

The convention of the Manitoba Dairymen's Association was also held at this time, and although this association is in its infancy and its membership roll small, under the management of energetic officers it will soon occupy the same position towards the dairymen of that province that its sister organizations in Ontario do to Ontario dairymen and dairy interests.

From this time until the end of October I visited fifteen cheese factories and seven creameries, and held meetings at twenty places in Manitoba and the Territories, covering the main line of the Canadian Pacific Railway from Elkhorn west to Regina, the Northern Pacific, Portage la Prairie branch, the Manitoba and South-Western, the Emerson branch of the Canadian Pacific Railway, the Northern Pacific from Winnipeg to Emerson, the Red River, and Springfield and Stonewall sections.

I also spent two weeks during September at Manitou cheese factory, making cheese for export, as a demonstration of the quality of cheese Manitoba is capable of turning out.

I spent a week at the Winnipeg industrial exhibition, and, together with Mr. Whitley, acted as judge on butter and cheese. The exhibition was a grand success as regards exhibits, but owing to wet weather during the last days the gate receipts were considerably lessened. The large and splendid exhibit of butter and cheese, especially of butter, was beyond expectation. In butter the quality—with some exceptions, of course—in all classes was very fine, and the prize winners represented nearly every locality where butter-making is carried on extensively. In cheese the quality did not represent as high a degree of excellence as the butter; but, considering everything, it was very good.

The object of my visits to the cheese factories and creameries was the giving instructions on the most improved methods of making butter and cheese and testing milk, gathering of information on the condition of dairying, and the quality of dairy products manufactured. At the meetings held I gave a practical demonstration of butter-making and a talk on some branch of dairying, particularly on butter and the advantages of mixed farming. The interest manifested in these meetings and the large attendance, considering the season, when nearly every person was extremely busy, was beyond expectation.

At the cheese factories and creameries my visits were received with a lively interest, and every person seemed eager to gain information. The testing of milk with the Babcock and lactometer was a wonder to some and a revelation to the majority.

I found that in the localities where farmers' institutes existed the meetings were most successful from the point of numbers and enthusiasm, which is one of the many proofs of the great benefits farmers receive by clubbing together. In one community, where the organization has taken the form of a farmers' club, there was said to be a clear saving to the members for last harvest's binding twine of \$900. In some places, where institutes had only recently been organized, they had a membership ranging from one hundred to one hundred and twenty, which means a large number when you come to consider the sparse population. It is most unaccountable that the farmers are so slow in taking up with co-operative dairying, and in my trip I encountered several "monuments," in the form of idle factories and creameries, caused by not holding together. These meetings were also well patronized by the ladies, and frequently they were in the majority. Sometimes they invited the keenest discussion, when the exhibition of butter-making was going on.

The advantages of carrying on mixed farming profitably are numerous, and the benefits to be derived by the extension of dairy lines of agriculture cannot be over-rated. The faults in the present system of farming which suggest themselves to me are, that nearly every farmer attempts to grow too much wheat. This sowing of a large acreage may be excusable, on the ground that if properly harvested, and not damaged by the elements, the return is very large, but the wisdom of it is very doubtful, judging from past results. The one great desire of the farmer is to have his wheat ripen early, and day by day, as the season of the year approaches when frost may be expected, the anxiety increases, and only those who are deeply interested can fully understand the deep concern and the murmur of low voices of men gathered around a thermometer at 2 or 3 a.m. on a cold night, when frost is feared. When harvest is in full swing, the question of securing enough help is often a serious one. The time is very limited for the harvesting of large areas of grain, threshing, marketing and ploughing, specially so if the weather happens to be unfavourable.

It appears to me that under existing conditions—even if the farmers do not wish to fortify themselves by adopting mixed farming—that to cultivate a smaller acreage, to have the ground thoroughly prepared in the fall, so as to ensure early seeding in the spring, the careful selection of seeds that will give the best results as to early ripening and market value, would enable the farmer to cut his grain before there was much risk of frost, and finish threshing and ploughing before winter sets in.

It may be some time before districts such as Portage la Prairie, Carberry, Brandon, Virden, Souris and Wawanesa take up dairying to any great extent, as these districts are particularly well adapted for wheat growing, and the natural inclination of the people appears to be towards that line of agriculture. Other sections, where wheat growing is carried on just as successfully, are also well adapted for mixed farming, and the necessity as well as the profitableness of developing the dairy industry are recognized.

I am very much impressed with the prospects and natural advantages which the different sections visited possess for the manufacture of the best quality of butter and cheese. The abundance of cheap pasture, the natural richness of the milk, usually the most favourable weather—warm days and cool nights, which should mean the delivery of the milk in fine condition—are all favourable to the production of good quality, and under careful, competent management, and the employment of skilled labour, success is assured.

Cows.

My first impression, formed of the cows as I saw them from the car windows, and passing them when driving over the prairie, was not a favourable one. A great many of them were large, uncouth-looking animals; but as I became better acquainted with their value for beefing and dairying purposes, and the exceeding richness of their milk, my opinion changed to wholesome respect. Throughout the Red River section there is a great variety of common-bred cattle; but in other sections there were animals of decidedly better appearance. I saw some fine herds of Ayrshires, Shorthorns and grades. In conversation with drovers they were very positive in their statements that these grades were superior to similar-bred cattle in Ontario in point of quality and value. There has been little effort put forth in the breeding of Jerseys, as the general impression is that with the somewhat scant stable accommodation the climate would be too severe in winter. The greatest drawback existing at the present time in the raising of live stock is experienced in wintering them. Fine bank barns and comfortable stables, such as those of Ontario, are as yet few in most sections, the cost of building material being high and beyond the limited means of the majority. It is possible, with the limited means at hand and at no great trouble or expense, to make most comfortable stables, especially when straw is so plentiful.

Pasture.

The large extent of unoccupied lands in the majority of places provides an abundance of pasture. In the more thickly-populated portions, where the land is all taken up and the farmers are compelled to pasture within their own limits, they find themselves forced to make provision for pasture by sowing grasses. This has been tried with varied results, and there appears to be a great diversity of opinion as to the ultimate success of the experiment, some having good results and others declaring it a failure. Experiments carried on at the Brandon and Indian Head experimental farms go to show that there are several varieties of native grasses that can be successfully and profitably grown. The best mixtures of different seeds to give the best results as yet have not been fully determined, but experiments towards the establishment of these points are being carried on. The number of places where this question is a live issue are at present few indeed, and the unlimited amount of natural pastures is the greatest inducement to the keeping of live stock. Last summer was most favourable for pasture. Owing to the unusual amount of rain at all times, the ground never became parched or the pastures burned up, as sometimes happens during a dry summer. The latter danger can easily be guarded against by the sowing of mixed crops for green feed, which give an enormous yield per acre.

Almost the only cost at present for the whole summer's feed is the expense of keeping a herd boy.

The supply of hay on the marshes or sloughs affords opportunity for providing good feed for the winter months, the cost being very small. The hay is usually cut and stacked during the summer months, and hauled home in the winter as it is required. In some districts, where farmers are compelled to go a great distance to cut hay, it would be much better to sow mixed grains, such as oats and barley, or oats, barley and vetches, to be cut when green and cured the same as hay. The yield per acre is very large, for under favourable conditions it has averaged between four and five tons per acre.

Water.

In a number of places visited the scarcity of good water is a drawback. In the Red River district, where there are ten cheese factories and three creameries, the country is watered chiefly by the Red, Seine and Rat rivers, and they are muddy streams. I found a decided improvement in the water in the Steinbach and Green-felt sections. At some places there were flowing wells.

Along the western side of the Red River, at a great many places the supply of water is limited, but is apparently of a very good quality. The importance of a large supply of good water for cows where dairying is carried on is often overlooked, but when it is considered that nearly 87 per cent of milk is water, the necessity for cows not being allowed to drink anything impure is readily recognized.

Creameries.

I was very much surprised to find the creameries so well equipped and turning out such a fine quality of butter. Of the seven creameries visited, five were being run on the centrifugal-separator system, and two on the cream-gathering system. The one difficulty in operating a creamery on the separator plan is the distance the milk has to be drawn, owing to the sparse population. The creameries run on this system are situated in fairly well-settled districts, the greatest distance that milk is delivered from being about six miles. They are all owned and managed, with one exception, by private individuals, the patrons delivering their own milk and taking home 80 per cent of the amount delivered in skim-milk. The mode of payment varies. In some cases the milk is purchased at from 65 cents in the spring to 80 cents in the fall per 100 pounds of milk delivered. Others charge 5 cents per pound of butter manufactured. At one creamery, during the season of 1890, the patrons realized 77 cents per 100 pounds of milk delivered.

The creameries are all doing good work, and should receive the hearty support of the farmers in their several districts. The creameries being run on the cream-gathering system, are situated in less thickly settled localities, and in gathering cream a distance of about twenty miles is covered. The difficulty experienced in this system is the varied conditions of the cream when delivered at the creamery in warm weather, when very little care has been taken to keep the cream pure and sweet. The butter-makers complain, and rightly, that it is impossible to make fine butter under these existing evils. The free use of ice, by keeping the cream in ice-water until collected, would remedy this entirely, and the expense of storing a sufficient quantity of ice during the winter would be very small. The Fort Qu'Appelle creamery is a joint stock association, but owing to the apathy of the farmers and in spite of the efforts of the promoters to have the farmers buy a sufficient amount of stock to have the controlling interest, only 10 per cent is held by them. The creameries are all of modern structure and equipped with the latest improved machinery and appliances. When visiting St. Eustache I was somewhat surprised to find a "Babcock" milk-tester in use, testing the skim-milk and buttermilk, to see that they were getting the best possible returns from the separator and churn, and also testing the milk as sent in by the patrons.

This keen interest manifested by the creamery men augurs well for the future, and they are fully alive to the necessity of always turning out a first-class article, allowing no loss in any part of the business.

The splendid averages are also very encouraging, and it almost appears that this line of dairying at the present time is the most advantageous. The quality of the milk is very rich, especially when considering the breed of cows. The amount of milk received daily at the centrifugal-separator creameries varies from 3,000 lb. to 8,000 lb. per day, and the amount of butter made daily at the cream-gathering creameries from 100 lb. to 200 lb. The percentage of butter-fat contained in the milk delivered at the different creameries ranged from 3·8 per cent to 4·8 per cent, and in one case a sample of milk taken—being the milk of a herd of grades—contained 6·6 per cent of butter-fat. The average number of pounds of milk to make a pound of butter is from 24 lb. in the early spring months to 18 lb. in October. The best of results were being obtained in the separating and churning process, the skim-milk showing two-tenths of one per cent of butter-fat, and the buttermilk showing only a trace.

Nearly all the butter is shipped direct from the creameries to British Columbia, as there is a demand there for a first-class article. The prices realized are from 18 cents to 25 cents per pound, according to season and state of the market.

The freight rates are at present rather high, being nearly two cents per pound to Vancouver, but as the amount for shipment increases, possibly to car-load lots, the cost of carriage should be reduced.

A large quantity of butter is marketed locally, at nearly all points visited, and the quality as usual presents a variety of grades. Virden, Grenfell and Wolsely, have adopted an excellent system of inspection of all butter disposed of at those points. A butter inspector is appointed, and it is necessary for all butter to be inspected and graded by this person, and the price is regulated according to grade. There are generally three grades—Nos. 1, 2 and 3—and the difference in the quality as represented by the grades is two or three cents per pound per grade. This system should be adopted at every place where butter is sold, as it not only puts a premium on quality, but protects the merchant, who, being dependent on the patronage of those having butter to sell, finds it almost impossible to pay different prices on his own responsibility.

Cheese Factories.

At the fifteen cheese factories visited, with four or five exceptions, the quality of goods manufactured, the buildings and equipment, were much inferior to the creameries. The majority of the buildings are of cheap construction. In some no arrangements have been made for heating water, and in consequence very little of it is used, and the idea of running a cheese factory for six months, without hot water or a scrubbing brush, is a rather startling one. The other factories are nearer what they should be; with buildings properly constructed, and equipment very good, they are manufacturing a very fair article. With one exception, the cheese factories are owned and managed by private individuals. At nearly every place the amount of milk supplied is small; the cost of manufacturing is therefore high, and the returns on investment are doubtful. The amount of milk delivered at the factories varies from 1,200 lb. per day to 6,000 lb. per day; and the total make of cheese during the seasons of 1890 at different factories ranged from 10 tons to 20 tons each.

The quality of milk delivered is very good, the percentage of butter-fat on individual samples showing from 2 to 4·6 per cent, with averages from the milk vats of 3·75 per cent to 4·2 per cent. In taking samples of all the milk delivered at the several factories there were few indications of adulteration, but in some cases there were, and those mostly in the locality where the factory has been in operation the longest. The number of samples showing less than 3·5 per cent butter-fat were very few; a great many showed about 4 per cent.

The average number of pounds of milk to make a pound of cheese is from 9·12 to 9·34, and although these averages are exceedingly low, the milk was not always handled to the best advantage; if it were, even these averages may be lowered. The prices obtained were good—the ruling figures received at one factory during

1890 being $10\frac{1}{2}$ cents. Others received from 12 to 9 cents, according to the state of the market and time of the season. There are a large number of small cheese made, from 10 to 15 pounds in weight, and higher prices are realized for them than for the big cheese, and in this way the average price is increased. The cheese are nearly all handled by Winnipeg houses, and go to supply the local trade and British Columbia. The mode of paying for manufacturing differs at almost every factory. One factory charges 25 per cent of the gross proceeds; another $2\frac{1}{2}$ cents per pound of cheese; another buys the milk at 70 cents per 100 pounds, and in every case the patrons deliver the milk and receive their share of whey in return. At one factory the proprietor charges 3 cents per pound of cheese, provides all the furnishings, collects the milk and retains the whey. In one small factory the proprietor is running it purely for the love which he bears towards his neighbours. He makes the cheese for $1\frac{1}{2}$ cents per pound; the highest amount of milk received any one day during the season was 2,400 pounds, and calculate as you will, he loses money. The cost of dairy supplies and furnishings is very high. Cheese boxes, from the sawed material made up at the factories, cost from 16 to 18 cents per box; Hansen's extract of rennet, \$2.40 to \$3 per gallon, and Hansen's annatto, \$2.40 to \$2.50 per gallon, in Winnipeg. The drawbacks at present in the manufacturing of cheese are the engagement of incompetent men and poor equipment of the buildings. In some cases where there are good men, everything is so poorly arranged that they become careless. The reasons given for employing non-competent men are that the factories are so poorly patronized and the returns so small that it is impossible to pay the wages good men would demand. I don't wish to be understood as saying that there are no good cheese manufactured. Many of the factories visited had some very fine cheese on hand, but there was a lack of uniformity.

The set-back caused by the closing down of a creamery or cheese factory, owing to mismanagement, will do more harm than can be undone in five years, and, therefore, it is imperative for the success of any concern that it be started on a fair business basis.

The Babcock Milk Tester.

The wonderful simplicity and undoubted reliability of the Babcock milk tester renders it invaluable to the dairying interests. Any person of ordinary intelligence can learn to use it in a very short time. The great difference in the per cent of butter-fat contained in milk from different herds, the undoubted value of milk according to its butter-fat, goes to show the injustice of the present system of paying for milk. The immediate adoption of the system of paying for milk according to the per cent of butter-fat contained is most desirable, not only for its being the only equitable way, but as a prevention against all frauds.

I feel I cannot close this report without acknowledging the great help received in the work from the press, at all points visited. The many long reports of meetings, notices given of intended movements, the objects of the work, and anything of interest which may have been said, were brought before the notice of a large number of people who, owing to distance or pressure of work, were unable to attend the meetings. The agricultural and dairy papers of Winnipeg, going into thousands of homes in all parts of the country, together with the local press, wielding an influence in its more immediate vicinities, evinced an unusual willingness to do anything in the interests of this new movement.

The remarkable hospitality of the people and the many kindnesses received at their hands is a most pleasant remembrance of my trip, and the future prospects of this young country, naturally endowed with such wonderful resources and inhabited by such a whole-souled people, are indeed bright.

Since my return to Ottawa, early in November, my time has been spent chiefly in the dairy, carrying on a series of milk tests, results of which in part have been handed in to you.

I have the honour to be, Sir,

Your obedient servant,

J. B. McEWAN.

(9) REPORT OF C. F. WHITLEY.

Prof. JAS. W. ROBERTSON,
Dairy Commissioner, Ottawa.

SIR,—I have the honour to submit to you a report on my work in Manitoba during the summer of 1891.

In accordance with instructions received from you I arrived in Ottawa on 11th June, and was engaged at work in the dairy, as well as at other experimental work of the department.

I left for the North-West on 13th July, *viâ* the lakes, on the SS. "Athabasca." The following day, while steaming up the "Soo" a collision occurred with the American steam barge "Pontiac." For a few minutes considerable excitement prevailed, as the barge was seen to sink, and the damage to the Canadian Pacific Railway boat was unknown. It was soon found, however, that the Clyde-built steamer was uninjured below the water line.

Brandon was reached on 16th July, late at night. A run out to the experimental farm the next morning was repaid by the sight of magnificent crops of all kinds, the wheat especially attracting notice, as much of it was then over 4 feet 9 inches high and heading out splendidly. The shade trees and wind breaks were doing remarkably well, while a beautiful assortment of richly hued garden flowers added most pleasing variety to the scene.

General Plan and Object.

The general plan and object of the work was to visit all parts of the Province of Manitoba, holding meetings of farmers and others interested in dairying, with a view of promoting an improvement in the make of butter. The route mapped out for me lay along the Manitoba & North-Western Railway from Portage la Prairie, Manitoba, to Salcoats, North-West Territories; then from Portage along the main line of the Canadian Pacific Railroad to Oak Lake, Manitoba, and then on the Pembina Mountain Branch from Morden to Deloraine.

Meetings.

Short circulars were mailed to leading farmers and townspeople of the several districts, asking their co-operation in securing meetings, and providing cream for the practical illustration of butter-making. Small posters were also issued at the same time and freely distributed, calling the attention of the farmers and general public to the meeting, while ladies were particularly invited. The wisdom of this is at once apparent when it is remembered that at present the prairie province is not so rich in creameries as her elder sister, Ontario; therefore almost all Manitoba butter is made by the ever-industrious farmer's wife in the home dairy. In all 29 meetings were called, but owing to the extreme pressure of an enormous harvest, and the scarcity of efficient farm help, attendance was secured at only 20. At 13 of these cream had been kindly provided, and as a complete churning outfit was carried (such as every farmer should possess), it was duly churned and the whole process carefully explained.

The attendance varied considerably, in one case reaching 200, but at another dwindling to 9. During the first month there was a good average, but the urgent business of harvest made it advisable for the meetings intended for September to be postponed till October. During the last fortnight it was specially arranged to take in as many as possible of the fall exhibitions on the Deloraine line, and in this way to meet a larger number of people. The total attendance was about 730, which gave an average of 36 for each meeting.

During the operation of churning addresses were given, in which the following points, amongst others, were touched upon: Care of milk; improvements necessary in dairy stock; longer milking season; proper feed, care and attention to animals; the advantages of dairying and mixed farming compared with exclusive grain growing; the importance of the export trade in dairy products and the advantages

of the factory system. Special stress was laid on the importance of the most scrupulous cleanliness in all stages of butter-making; straining of cream into the churn; the use of a reliable dairy thermometer; neatness in packages for the market, as well as the necessity of good milk-houses and storekeepers' cellars.

In almost every instance a very lively degree of interest was manifested in the meetings, as people drove in considerable distances to attend them. When the address proper was over a long time was spent in answering questions relative to the subject-matter touched upon, as well as other points connected with dairying. It was noticed that, in a few cases, the object of the meeting was quite misunderstood; several times the question was asked, "Are you peddling some new kind of churn?" while at others some good people seemed considerably astonished and not a little annoyed that the various articles in use were not for sale. It would have been an easy matter to dispose of several hair sieves, floating glass thermometers and bags of salt at remunerative prices. The use of the first named seemed to be quite a novelty to the majority, and much surprise was manifested when some particularly nice-looking cream was brought into the meeting, to find how successfully the "little detective" captured the stray sundries and prevented their trespassing into the churn. To many, also, the thermometer was a stranger, so that a lot of guess-work in butter-making must have been done, and resulted in disappointment.

This being the first season when work of this kind has been undertaken in the province, the interest manifested may be considered very satisfactory, especially when other conditions are taken into account. Judging by the remarks of those present at the meetings the probabilities are that a second series of such gatherings will be attended by a far larger number of the inquiring and enterprising portion of the agricultural population.

In most places some good friend of the dairy cow, and dairying in general, had taken pains to secure a suitable room and have all needful arrangements made. At others some hurrying around had to be done to secure a meeting place. On one occasion school was dismissed early to leave the room at liberty, and the dairy meeting had to be a little hastened to allow of a case being heard before the local magistrates. At another a half-finished warehouse was called into requisition, there being no other available building. The audience dispersed themselves gracefully amongst a profusion of nail kegs, window sashes, and carpenter's tools. At yet another place no public hall of any kind existed, so that those interested in the movement assembled in the hotel parlour. It might be as well to intimate at this point, that this was a non-licensed town.

Most of those present at the meeting expressed a desire to receive the Dairy Bulletins regularly, and a list of about 600 was therefore forwarded to the office at Ottawa.

Condition of Dairying.

The old saying that "wheat is king" still obtains in a large portion of the province, but it is an open secret that some of the clearest thinking men of the country are not satisfied with the returns yielded by the staple cereal, and are seeking after something that will give more regular and sure profit. It is no idle claim when it is asserted that the industry of dairying will save the farmer from disappointment and enable him to count on a steady income. To me it seems that exclusive wheat-raising is a very risky style of farming, to say the least of it, and some of the oldest residents in the province and those even in the more renowned wheat districts have decided that mixed farming and dairying may be introduced with advantage. Hence we find that in many localities the advisability of erecting a cheese factory or creamery has already been talked about.

Along the Manitoba and North-Western Railway there are three creameries in operation. That at Shoal Lake is owned by Mr. R. Scott, and is in many respects a good model. The building is beautifully situated on the edge of the lake, and with the dwelling house and its natural setting would make a charming and fitting sketch for an artist's pencil. When visited in August the place was in very good shape

and beautifully clean. An excellent quality of butter was being manufactured by the most approved methods and modern appliances, and stored in a large airy cellar ready for shipment to British Columbia. The make for the season of 1890 was close on 26,000 lb., and the year before was about half as much more. There is a steady demand in British Columbia for A1 "Manitoba Creamery," and one of the leading Winnipeg dealers stated he could not nearly supply all the quantity that is asked for in that province. Notwithstanding this, it seems hard to move the generality of farmers to support the creameries, and as a consequence the routes for collecting cream are so long that considerable expense is incurred. Little by little, though, the number of dairy cows is being increased, and it is most gratifying to notice that in this particular section Mr. R. Scott is introducing pure-bred Ayrshire cattle. A private "creamery" not 1,000 miles from Birtle afforded a striking contrast to the above. A single door separated it from the stable, and in one corner of the not over-clean apartment a man was patiently revolving a barrel churn filled to within 2 inches of the top. A separator had been in use but was discarded. Truly there is some need for enlightenment as to the best dairy practices even in this wonderful province. It is but fair to state that the owner intended erecting a more suitable building at an early date.

At Russell is to be found the creamery of the Barnardo Home, where the most able and genial manager, Mr. Struthers, has employed a first-class Danish butter-maker. As a consequence there is a ready sale in Winnipeg for the neatly packed tubs and delightfully tempting prints, all tastefully branded with a conspicuous "B."

At Saltecoats, N.W.T., a creamery is in operation controlled by Mr. Cory. About 1,400 lb. of butter per week were being made up and shipped regularly. All along this section of the country there is ample room for an immense extension of the industry. A drive round with one of the cream-collecting vans revealed the fact that over 30 miles had to be travelled to collect about 45 gallons of cream. And this in a section where abundance of good water and natural herbage are found. It is sincerely to be hoped that the present number of 76,000 milch cows in Manitoba, owned by the 18,940 farmers, will speedily be more than trebled. The cream collected on that route was in all stages of ripeness, and in one case perfectly sweet. Twelve cents per inch of butter-fat, as revealed by the oil-test churn, was the price paid at the creamery. Here, as well as in Manitoba, the milk-houses presented every variety of appearance. The thrifty house-wife, in some cases, had prevailed on her prudent spouse to erect a very convenient and well-ventilated milk-house, where the array of shining pans, each with its quota of thickly creaming milk, presented a sight most pleasing to the eye. But as a general rule the system of setting is to use deep cans lowered into a well or placed in a box of suitable depth, through which cold water is made to run.

Unfortunately, however, in a great many instances too little attention is paid to cleanliness of the surroundings of the milk while creaming, and of the cream while ripening. Some of the poor sod erections which do duty as milk-houses are also utilized as a storehouse for various articles of diet in all stages of cooking, while potatoes, not always in the best state of preservation, and even onions, are to be found therein. Occasionally an old boot is thrown in, apparently to preserve it from the weather.

With this lack of the first essential of successful dairying—cleanliness—it is scarcely to be wondered at that in some districts the stores are burdened with an excess of unmarketable butter which the storekeepers would far rather be without. Under the present conditions, however, the indulgent dealer can scarcely do otherwise than accept it in trade, for it frequently happens that the best customer at the store is the poorest butter-maker. Thus it has sometimes occurred that the Indians in the neighbourhood of certain localities have been made the recipients of tub butter that was positively unfit for sale. The old trouble arises again—that these poor makers are invariably the ones who consider their butter of prime quality; they are, therefore, averse to reading on the subject or attending dairy meetings.

In the hope of effecting a remedy for this deplorable state of affairs, it is suggested that storekeepers be supplied with printed slips containing a few suggestions as to the essentials of good butter-making, such slips to be distributed as the tubs are sold. It would be well to draw special attention to the absolute necessity of using a better quality of salt. Perhaps by degrees the storekeepers will see that it is to their own ultimate advantage, as well as that of the country, to refuse absolutely bad butter. It was found in several cases that, contrary to the general belief, an extra price of 1 or 2 cents per pound was given to those who had proven their right to the claim of making better butter than the average. It is this home-made butter which demands immediate attention; the creameries with their uniform product are doing well, but these odd lots of every colour and flavour (the latter partly obtained, it must be admitted, in the cellar of the country store), may obtain a bad name for Manitoba butter in the markets. An instance might be noted here of the demand there is and always will be for first-rate butter. At the Jamaica exhibitions M. de Laborderie had some samples of his gilt edge butter from the St. Malo creamery put up in 1 and 2-pound tins. These were noticed there by a San Francisco firm, with the result that a trial order was placed with M. de Laborderie for 600 pounds, at 30 cents, with freight and duty paid. During the season of 1890 it might be mentioned that over 100,000 pounds were shipped at Otterburn from the three creameries.

Natural Adaptation.

Possessing as it does such an abundance of natural grasses with extraordinary nutritive properties, climatic conditions which are peculiarly favourable to the proper handling of milk, and the satisfactory transportation of the finished product, and speaking generally, good water, Manitoba should speedily make a name for herself for the uniform excellence of her dairy produce. She has already won rich laurels for herself in the eastern provinces in competition with the whole of the Dominion, and a great future assuredly awaits her as regards dairying, if but proper attention is at once paid to the careful production of uniformly fine quality.

The soil is famed the world over for its wonderful richness and productive power, but that does not mean that its capacity for exclusive wheat-raising is unlimited, as some settlers would seem to imagine. It is found, after careful experiments, that manuring is beneficial—an earlier crop results. It follows, therefore, that he is the wise farmer who keeps stock to use up the abundance of straw and return valuable manure; he is the wiser farmer who keeps such qualities of cattle as will yield him still more valuable returns in butter and cheese.

Nature provides an abundant supply of variously flavoured grasses, so that the enterprising dairymen need scarcely ever fear a shortage. These are capable of being still further developed, as shown by the experiments at the Brandon experimental farm. Again, the corn crop, which is doing so much for Ontario dairymen, can be utilized to advantage for feeding in Manitoba, provided it is cut before August. An average yield for the province is at least 12 tons per acre, which may be fed with excellent results as to the quantity of milk and colour and body of the butter. The "North Dakota" promises the best. Bran, to be had at about the same as Ontario prices, can also be profitably fed, and it is expected that the experiments now in progress at the Central Farm, Ottawa, will prove that frozen wheat, when it does appear in the country, can be made to yield a larger return when converted by the animal economy into dairy products than when marketed at 45 cents per bushel or less. Roots all over the province are exceptionally fine.

In most districts good modern appliances for dairy work are on sale, though in some cases the old dash churn and some very primitive methods are affectionately adhered to. Here and there an old wooden bucket is used for milking, but as a general rule good tin utensils or the indurated fibre pails of the Eddy Company are to be found in active demand and extensive use. Questions were frequently asked concerning centrifugal cream separators and the butter extractor, and it is believed that the former will be found in pretty fair numbers within the near future.

Stock.

All kinds of stock thrive remarkably well in the province; sickness is very seldom met with. Horses scarcely come within the scope of this brief report, but one could not help being struck by the beautiful type of drivers in use at Winnipeg and Brandon especially; also by the large numbers of heavy horses imported from Ontario at high prices.

Almost every breed of cattle is represented in Manitoba, and the principal exhibitions made it evident that many excellent individuals, as well as herds, are owned by pushing stockmen. Beefing cattle, in certain districts, are in special favour, and, though the Manitoba farmer may only receive \$30 for a steer which sells in England for \$85, he finds it profitable to raise them. The milking breeds are by no means neglected, and decided improvement is being made in the common cattle by the use of pure-bred sires. Ayrshires and Holsteins seem most in favour, and many importations from the east have been made. It is gratifying to notice that numbers of people are not satisfied with less than a 10 months milking season, and therefore a habitude of prolonged flow is being fixed. Now and then one comes across a man making a good record with a cow in another way. For instance, a case was found at Whitewater where a farmer raised 6 calves on one cow inside 18 months. The weight of veal in 6 months from two of them was 378 and 370½ lb., respectively, and \$41.50 were realized.

Comparatively few sheep are at present to be found, but there seems to be a good opening for profitable investment in these "golden-hoofed" animals.

The number of swine might be considerably increased, for it appears strange to find storekeepers with stocks of eastern-cured bacon on hand, and hams from the United States on sale in Winnipeg.

One cannot take such a trip as I took without being impressed by the push and energy of Manitobans. The season of 1891 has seen, for instance, a large increase in the number of substantial farm buildings. On all sides, too, cheerfulness, contentment, a solid faith in the capabilities of the province, appear to prevail. One feels, therefore, that for the intelligent farmers already located there, as well as for the thousands who are bound to be attracted thither, a happy and prosperous future is in store. Everywhere I met with great kindness and courtesy, and special thanks are due to Mr. Struthers, of Russell, and the Hon. Walter Clifford, of Austin, for their generous hospitality.

I have the honour to be, Sir,

Your obedient servant,

C. F. WHITLEY.

INDEX.

	PAGE.		PAGE.
Abortion, epidemic, treatment of.....	27	Calves, feeding and care of.....	42
Acknowledgments.....	26	Canada, essentially an agricultural country.....	110
Addresses and lectures,—		Carbo-hydrates in fodders.....	103
The economical production of butter ..	78	Cattle.....	26
The possibilities of selling Canadian		purchased for Experimental Farms....	26
farm products at a profit in the Eng-		general management of.....	
lish market.....	84	dehorning of.....	28
The economic feeding value of ensilage.	99	feeding, experiments in.....	29
The relation of agriculture to progress		cost of feeding.....	31
in the development of Canadian life.	109	Canadian, for Great Britain.....	92
The Babcock milk-tester.....	115	in Manitoba.....	186
Agreement as to the Mount Elgin winter		in New Brunswick.....	163
creamery.....	5	in Nova Scotia.....	171
Agricultural capabilities of Canada.....	110	in Prince Edward Island.....	166
of British Columbia.....	23	in Quebec.....	130
of Ontario.....	79	Centrifugal cream separators.....	83
of Lake St. John district.....	159	Chapais, Mr. J. C., Assistant Dairy Com-	
of New Brunswick.....	162	missioner,—	
of Prince Edward Island.....	166	summary of report by.....	16
of Nova Scotia.....	171	report by.....	128
of Manitoba.....	185	Cheese, exports.....	25
Agriculture, its relation to progress in the		imports into Great Britain.....	25, 94
development of Canadian life.....	109	what is required in.....	133
Albuminoids, constituents of fodders.....	102	of Ontario.....	140, 176
Analysis of milk.....	43	of Quebec.....	157
of condensed milks.....	125	of New Brunswick.....	164
Antigonish, N.S., cheese factory.....	173	of Nova Scotia.....	173
Apples, import into Great Britain.....	99	Cheese factories, inspection of.....	136
Ash, in fodders.....	102	Cheese factories in Ontario.....	141, 144, 175
Assistants in dairy work.....	1	in Quebec.....	156
		in New Brunswick.....	164
Babcock, Dr. S. M.....	120	in Nova Scotia.....	169, 172
Babcock milk-tester.....	115, 161	in Manitoba.....	180
series of tests with.....	121	Cheese makers, recommendations to.....	137, 142, 144
wooden racks for.....	122	differences in.....	145
Barley, import into Great Britain.....	98	Cheese making, experimental, at London..	3, 141
Beef, import into Great Britain.....	92	at Perth.....	3, 145
Boxes, cheese.....	157	at Huntingdon.....	155
Brandon, Man., Summer Fair.....	176	at Dunham.....	161
Experimental Farm.....	182	Cheese making furnishings.....	156
British Columbia, summary of work in....	23	Churning, experiments in.....	58
British market, Canadian butter on.....	3, 12	Circular to announce visit of Superinten-	
possibility of selling Canadian products		dent of dairy work.....	2
in, at a profit.....	84	to announce visit of Assistant Dairy	
British opinions on Canadian butter.....	8	Commissioner.....	135
Brownsville, Ont., experimental cheese-		asking for a meeting to be arranged...	136
making at.....	143	sent with corn samples.....	19
Butter, "materialized sunshine".....	81	about travelling dairies.....	21
Canadian, on British market, from		Clover ensilage.....	75
Mount Elgin.....	12	Condensed milk, imports into Great Britain.	94, 97
from Woodstock.....	12	examination of samples.....	124
British opinions on.....	8	analyses.....	125
exports.....	25	Conventions, usefulness of.....	78, 84, 100
imports into Great Britain.....	25, 95	Co-operation gives power.....	79
the economical production of.....	78	Co-operative factories in Nova Scotia.....	169
Butter factories. See Creameries.		Corn, directions as to culture and use....	19, 76
Butter-fat. See Fat.		distribution of samples.....	19
Butter making, difficulties in.....	83	cultural experiments.....	72
at Mount Elgin winter creamery.....	7, 142	digestible matter in.....	106
at Woodstock winter creamery.....	9	stages of growth.....	107

	PAGE.		PAGE.
Corn, fodder, and the silos.....	71	Eggs, import into Great Britain.....	95
experiments with different sorts.....	71	England, a nation of shop-keepers.....	89
ensilage, condition of.....	74	English market, the possibility of selling	
soil for.....	76	Canadian farm products at a profit in	84
seed.....	76	Ensilage, corn, pease, mixed, etc.....	74
method of planting.....	76	Ensilage, the economic feeding value of.....	99
cultivation of.....	76	Ensilage makes winter dairying possible.....	108
cutting of.....	77	Ensilage and Economic Cattle Feeding As-	
should be grown in Nova Scotia.....	172	sociation of Central Canada.....	109
Country men and townsmen depend on each		Enthusiasm, a factor of success.....	79, 100
other.....	90, 110, 112	Exhaustion of soil by selling hay.....	80
Cow, dairy, selection of.....	81, 130	by selling grain.....	90, 101
Cows, dairy, in Quebec.....	158	Exhibition, Dominion Dairy, Sherbrooke.....	15, 138
in New Brunswick.....	163	Exhibitions, working dairy at.....	15, 153
in Nova Scotia.....	171	Experimental cheese-making.....	145
in Ontario.....	175	Experimental dairy stations, provision for,	
in Manitoba.....	178	by Parliament.....	1
Cows, milking, feeding of.....	34, 131	desirability of.....	161
composition of rations for.....	36, 42	Experimental dairy work, Central Experi-	
Cream, qualities of.....	11	mental Farm.....	50
from cows at different stages of lactation		Superintendents of.....	1
sour vs. sweet.....	62	Experimental Farms.....	112
heating of, for butter making.....	83	Exports of dairy products.....	25
tables of experiments.....	64		
Creamery, winter, Mount Elgin.....	4	Factories' syndicates.....	134
apparatus necessary for.....	6	Farmer, the Canadian, advantages of.....	85, 112
Woodstock, Ont.....	9, 154	Farmers, importance of their work.....	110
on cream collecting plan, apparatus		Farmers' Institutes, in Manitoba.....	177
necessary.....	10	<i>Farmer's Advocate, The</i> , prize offered by... ..	15
Creameries, in Quebec.....	157	Fat, amount of, in milk.....	116, 119
in New Brunswick.....	164	milk should be paid for according to	
in Manitoba.....	179, 183	.....	116, 121, 138
in North-west Territories.....	184	Fat in fodders.....	103
Creaming of milk at different stages of		Fattening swine, experiments in.....	45
lactation.....	53	Feed growing, experiments in.....	66
Culture, system of, for production of milk	132	Feeds, digestible substances in.....	32
		Feeding experiments, steers.....	29
Dairymen's Associations, New Brunswick..	17	milking cows.....	34
Manitoba.....	176	calves.....	42
Dairy building, Central Experimental Farm	50	swine.....	45
Dairy industry, in Quebec.....	133	Feeding value of ensilage.....	99
Dairy industry, in its relation to agriculture,		Feeding, winter, leads to production of milk	131
progress of, in Quebec.....	15, 138	Fertility of soil exhausted by sale of hay... ..	80
Dairy products, Central Experimental Farm	66	by sale of grain.....	90, 101
Dairy show at Sherbrooke.....	15, 153	Fibre in fodders.....	103
Dairy Stations, Experimental.....	1, 161	Fodder corn. <i>See</i> Corn.....	
Dairy work, experimental, Central Experi-		Fodder crops in 40-acre lot.....	67
mental Farm.....	50	cured.....	70
Dairy, working, at exhibitions.....	15, 153	Fodders, constituents of.....	102
Dairies, travelling.....	17, 21	Forty-acre lot for feed growing.....	66
Dairying, adaptability for,—			
of British Columbia.....	23	Grain, distribution of.....	112
of Ontario.....	79, 175	Grains, imports into Great Britain.....	97
of Quebec.....	158	Grains, sale of, exhausts the fertility of the	
of New Brunswick.....	163	soil.....	90, 101
of Nova Scotia.....	170	Great Britain, imports into, cheese and	
of Manitoba.....	178, 185	butter.....	25, 94
Dehorning cattle.....	28	cattle and other farm products.....	92
Digestibility, percentage of, of fodders.....	103		
Digestible matter in fodders.....	105	Hart, J. W., on feeding calves.....	43
Dillon, T. J., summary of report by.....	13	Havelock, N.B., creamery.....	164
report by.....	139	Hay, sale of, from the farm exhausts the	
Distribution of fodder corn.....	19	fertility of the soil.....	80
of grain.....	112	Horses, imports into Great Britain.....	96
Dunham, Que., cheese-making experiments	15, 161		
		Impoverishment of land by bad culture....	129
Economic feeding value of ensilage.....	99	Indian corn. <i>See</i> Corn.....	
Economical production of butter.....	78	Intelligent labour, the source of England's	
Economy, there is nothing sordid in.....	79	prosperity.....	85, 111
	188		

	PAGE.		PAGE.
Lice on cattle, treatment of.....	28	Nova Scotia, summary of work in.....	18
London, Ont., experimental cheese-making 3,	141	agricultural capabilities.....	171
Macdonald, C. C., summary of report by	16	adaptability for dairying.....	170
report by.....	153	Nutritive ratio of fodders.....	103
Mangels <i>vs.</i> sugar beets, feeding test of....	41	Oats, import into Great Britain.....	98
Manitoba, summary of work in.....	21	Oil-test churn.....	11
reports on work in.....	176, 182	Ontario, summary of work in.....	1
adaptability for dairying.....	178, 185	reports on work in.....	143, 174
agricultural capabilities of.....	185	agricultural capabilities of.....	79
butter.....	183	adaptability for dairying.....	79, 175
creameries.....	179, 183	cheese factories in.....	141, 144, 175
cheese factories.....	180	winter creameries.....	4, 9, 154
Manure, its value, preparation, preservation, use.....	131	Pasture, Manitoba.....	179
Market, what is a.....	86	Pease ensilage.....	75
what is required in a.....	88	Pease, import into Great Britain.....	98
Market prices affected by carrying facilities.....	80, 89	Perth, Ont., experimental cheese-making at..	3, 145
affected by competition.....	87, 113	Peters, S.L., summary of report by.....	18
McEwan, J. B., summary of report by.....	22	report by.....	167
McKinley Bill, effect of, an increase of	174	Poultry, imports into Great Britain.....	95
Quebec farmer's prosperity.....	80	Press, help received from the.....	15, 109, 181
Meetings and lectures, Dairy Commissioner	24	Prince Edward Island, summary of work in..	21
in Quebec.....	128, 136	report of work in.....	166
in Ontario.....	140, 143	agricultural capabilities of.....	166
in New Brunswick.....	165	Profit is to be made by reducing cost of production.....	86, 114
in Prince Edward Island.....	167	Quebec, summary of work in.....	15
in Manitoba.....	182	reports of work in.....	128, 155
Milk, a perfect food, its composition.....	43	agricultural capabilities of.....	159
of fresh-calved cows makes better butter.....	8	adaptability for dairying.....	158
care of.....	133, 173	progress of dairying in.....	138
butter-fat in.....	116, 119	cheese factories.....	156
amount determined with Babcock		creameries.....	157
tester.....	115	Rennet, experiments on use of.....	151, 153
should be paid according to its amount		Rennet test.....	160
of fat.....	115, 121, 138	Report by Assistant Dairy Commissioner..	128
number of pounds required to make 1		summary of.....	16
pound of cheese.....	151, 152	Reports by Superintendents of dairying...	139
system of culture for production of....	132	summaries of.....	13-23
Milk setting experiments.....	83	Robertson, John, summaries of reports by..	18, 21
at different temperatures.....	51	reports by.....	162, 166
immediate <i>vs.</i> delayed.....	51	Ruddick, J. A., summary of report by....	14
for 11 hours <i>vs.</i> 22 hours.....	52	report by.....	143
with or without addition of water.....	53	Russell, Man., creamery.....	184
of cows at different stages of lactation..	53	Rye ensilage.....	75
in deep or shallow vessels.....	56	Sackville, N.B., creamery.....	164
in wider or narrow cans.....	58	Salt, effect of different rates of, in cheese..	148
after sterilization by heat.....	63	Saltcoats, N.W.T., creamery.....	184
Milk tests, Ontario.....	7, 12, 116, 145,	Sheep, New Brunswick.....	163
Quebec.....		Sheep and lambs, imports into Great Bri-	
New Brunswick.....	164	tain.....	93
Prince Edward Island.....	167	Sherbrooke Dominion Dairy Show.....	15, 138
Nova Scotia.....	173	Shoal Lake, Man., creamery.....	183
Manitoba.....	180	Shutt, Frank T., on constituents of fodders.	102
Milk testing for cheese factories.....	115	analyses of condensed milk.....	125
for creameries.....	118	Silos.....	77
Montreal Exhibition, working dairy at....	154	Soil, impoverished by bad culture.....	129
Mount Elgin, Ont., creamery.....	4	its fertility exhausted by sale of hay..	80
New Brunswick, summary of work in.....	17	by sale of grain.....	90, 101
reports on work in.....	162, 167	Sowing, results of early and late.....	113
agricultural capabilities.....	162	St. John Lake district, Que., advantages	
adaptability for dairying.....	163	for dairying.....	159
cheese factories, creameries.....	164	Steers, feeding experiments.....	30
North-west Territories, summary of work in	17	Sterilizing milk and cream by heating....	63, 64
report on work in.....	182	Sun, the source of energy.....	81
creamery in.....	184		
	189		

	PAGE.		PAGE.
Superintendents of dairy work.....	162	Water supply, Manitoba.....	179
reports by.....	139	Wealth, what is.....	111
Swine for Experimental Farm, purchased..	44	Wheat growing, extensive, unreliable.....	177
experiments in fattening.....	93	Wheat import into Great Britain.....	97
tables of.....	45	Wheaton, J. W., summary of report by. ..	20
Swine products, imports into Great Britain	93	report by.....	177
Swine raising, as an adjunct of winter		Whitley, C. F., summary of report by.....	23
dairying.....	108	report by.....	182
Syndicates, factories'.....	134	Winnipeg, Industrial Exhibition.....	177
Townsmen and countrymen depend on each		Winter creameries.....	4
other.....90, 110, 112		Winter dairying made possible by corn en-	
Trade in dairy products, volume of.....	25	silage.....	108
Turkeys, Canadian, imports into Great		Winter feeding leads to production of milk.	132
Britain.....	95	Woodstock, N.B., creamery..	164
Water, as an illustration of co-operation... 79		Woodstock, Ont., winter creamery.....	9
Water in fodders.....	102	report on work in.....12, 151	
Water in milk and cheese.....	116	Yield, total, of crops from 40-acre lot..	67

3421¹²³

